1980

Factors in vocational choice by college women

Karen L. Peterson
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FACTORS IN VOCATIONAL CHOICE BY COLLEGE WOMEN

Iowa State University PH.D. 1980

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Factors in vocational choice by college women

by

Karen L. Peterson

A Dissertation Submitted to the
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DOCTOR OF PHILOSOPHY

Major: Child Development

Approved:

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INTRODUCTION

Vocational choice is the process by which one sets about the task of choosing a vocation through a personal evaluation of one's role expectations, career considerations, and work values. Vocational choice of college students is based on more than their desire to pursue a particular kind of work. Involved in a student's choice of a major and in their vocational choices may be their personal preferences, personality factors, parental influences, as well as job availability, salary, features of a particular occupation, and even results of vocational testing.

Of particular interest to this study is the assessment of vocational choice components (role expectations, career considerations, and work values) among college women. Specifically of concern are those vocational components associated with occupations relating to the care and education of children. The relatively low social status and low monetary rewards associated with work with children, especially preschool children (Pettygrove, 1979) brings to question the vocational choice motivations of those choosing to work with children.

University curricula for the preparation of child care professionals often are found in programs of Home Economics. Researchers investigating the vocational choices and interests of women majoring in Home Economics have grouped all

students together rather than examining possible differences among students in the different areas within Home Economics such as Child Development, Textiles and Clothing, and Food and Nutrition. This study proposes to establish an instrument to assess antecedents of vocational choice by college women.

Theoretical Framework

Vocational choice has received attention from several theorists (Ginzberg, Ginsburg, Axelrod, & Herma, 1951; Holland, 1959, 1966; Roe, 1956, 1957; and Super, 1953, 1957).

Holland (1959, 1966) proposes a typology of six personality types and six environmental situations in his work on vocational choice. He states that at the time an individual chooses a vocation, he has established ways of coping with the environment and chooses his vocation according to his self-perception. According to Osipow's (1973) interpretation of Holland's theory, a career represents an extension of personality in one's attempt to implement a broad personal style into the context of his/her work. Roe (1957) considers personality and family background to be fundamental to an individual's choice of vocation. Roe theorizes that childhood experiences and parental childrearing practices foster adult attitudes and capacities that are expressed in an individual's vocational choice. Similarly, Osipow concludes from Holland's work that individuals choose an

occupation that reflects the stereotyped image they have formulated and maintained.

Blau et al. (1956) propose a socioeconomic framework in which exist two primary factors relative to occupational choice: 1) the specific occupation preferred by the individual, and 2) the expectations for entering various occupations. These investigators maintain that actual vocational choice involves a compromise between the two factors. Kievit's (1972) summary of the Blau et al. work is that conditions of occupational opportunity rather than actual factors of personality provides the framework for occupational choice.

Another theory of vocational choice is proposed by Ginzberg, Ginsburg, Axelrod, and Herma (1951). Four elements are developed in their theory: 1) occupational choice is a developmental process which typically takes place over a period of some ten years; 2) the process of occupational choice is largely reversible; 3) occupational choice ends in a compromise between interests, capacities, and opportunities; and 4) there are three periods of occupational choice development. In this final theoretical formulation, the developmental periods consist of fantasy (the wish to be an adult), tenative choice (trial feelings about particular occupations from ages 11 to 16 years), and realistic choice (the compromise choice of adulthood). Ginzberg and

his associates conclude that interests, capacities, and values remain the primary elements in the individual's choice of an occupation.

As more women have entered the labor force and as more research is being conducted on the vocational choices of women, theorists have attempted to make vocational choice theory more applicable to the life circumstances of women (Kievit, 1972). Two such theories are those presented by Psathas (1968) and Zytowski (1969).

Psathas (1968) proposes that factors involved in the selection of work for women are different from those which operate for men. Marriage, traditional role expectations, childrearing responsibilities, family social class, for example, have received little emphasis in other theories of vocational choice. Psathas questions the exclusion of primary components such as marriage, intention, fulfillment, family finances, social class, education and occupation of parents, values, social mobility, and mate selection in considering vocational choice in women. He suggests that vocational choice for women is highly complex, with interrelated factors being more significant than single elements. Psathas concludes that the elaboration of factors for women are more subtle and interrelated than may be assessed in single factor orientations proposed in earlier investigations.

Zytowski (1969) proposes a conceptual framework for vocational choice in women. Utilizing existing elements in career choice theory, Zytowski formulated several postulates of vocational choice development in women. These postulates include: 1) the model life role for women is that of homemaker; 2) woman's role is not static; 3) the life role of women is orderly with developmental tasks existing in each sequence; and 4) vocational and homemaker participation are largely mutually exclusive, with vocational participation constituting a departure from the ideal homemaker role. Zytowski also proposes that women's participation in the work force may be distinguished by the factors of age(s) of entry and span of participation. He concludes that women's preference for a pattern of vocational participation is a personal decision and is accounted for by motivational factors determined by both having to and wanting to work.

In general, research on women's vocational choice has, according to Zytowski (1970), focused on three dimensions: 1) role expectations through traditional versus nontraditional work roles; 2) career considerations through assessment of elements such as vocational aspirations, vocational preferences, and career salience; and 3) work values and work attitudes. Zytowski notes that work values represent factors significantly related to reasons individual's select particular occupations. Thus, it would seem that the

concept of work values is particularly useful for assessing the vocational plans for those preparing to enter particular occupations.

Statement of the Problem

This study will examine factors in vocational choices of college women students. Based on the theoretical and research literature, a Work Interest Questionnaire was developed for the study to assess role expectations, career considerations, and work values of college women. Conceivably, work values, role expectations, and career considerations of women students differ between students in different Colleges. Thus, responses to the Work Interest Questionnaire were examined for women students majoring in two selected curricula in Home Economics (Child Development and Food and Nutrition) and for students majoring in the Social Sciences and in the Biological Sciences.

The two groups of majors from the College of Home Economics (Child Development and Food and Nutrition) were chosen to represent what is thought to be fairly service oriented (Child Development) and fairly scientifically oriented (Food and Nutrition) curricula within the College. The Social Sciences and Biological Science majors in a sense replicate this movement from service to science outside the college. Responses by the majors to the Work

Interest Questionnaire were subjected to factor analyses to determine if differences exist across majors and to further refine the instrument.

Specific purposes of this study were to 1) develop a comprehensive instrument to assess vocational choice in college women; 2) utilize the instrument to collect data on vocational choices of college women majoring in Child Development, Food and Nutrition, the Social Sciences, and the Biological Sciences; 3) subject the instrument to a factor analysis with each group of women majors; and 4) identify possible demographic differences by declared major of the college women.

Operational definitions

Vocational choice: For purposes of this study, vocational choice is defined as women's responses to instrument items developed around the theoretical domains of role expectations, career considerations, and work values.

Role expectations: For purposes of this study, role expectations are defined as responses to items defining anticipated behaviors and attitudes with regard to marriage, homemaking, motherhood, and work.

Career considerations: For purposes of this study, career considerations are defined as responses to items of satisfaction with major, level of educational aspira-

tion, degree of career commitment, desire to work, parental expectations for work and family responsibilities, and parental satisfaction with the selected major.

Work values: For purposes of this study, work values are defined as responses to items describing specific conditions or attributes of the work environment.

REVIEW OF LITERATURE

Antecedents of vocational choice of women have been researched from several orientations. Early studies of women's vocational choices primarily were concerned with assessing differences between women choosing work outside the home compared to career-oriented women. Within the last twenty years research has focused on environmental, personality, and social variables as they individually and collectively may influence vocational choice in women.

The focus of this review is on those studies assessing the vocational choice of college women in the areas of career considerations, role expectations, and work values. Numerous such studies have been conducted.

Research on Career Considerations

Studies concerned with the selection of a traditional versus a nontraditional career, career salience and commitment, family and demographic variables, and multi-dimensional studies are reviewed in this section. It should be noted that studies of high school girls (Bordua, 1960; Matthews, 1963; Rezler, 1967) provide a source of developmental comparison for studies of college women.

Traditional and nontraditional careers

Almquist and Angrist (1970) conducted a longitudinal study of 110 college women. A questionnaire on adult role

expectations, occupational choice, career plans, and work experience was administered to each subject each fall for four years. The investigators focused on a "deviance" hypothesis which suggested that women who chose male-dominated occupations were different from noncareer-oriented women who chose traditionally feminine occupations. They also proposed an "enrichment" hypothesis which stressed the effects of broadening and enriching experiences on career planning. Statistical significance of the data was determined by use of correlational analysis. Findings provided only limited support for the "deviance" hypothesis but the "enrichment" hypothesis was well-supported when data on the mother's work history, student's own work experience, and the influence of occupational role models were taken into account.

Specific results of the Almquist and Angrist (1970) study indicated that the selection by women of an atypical career was significantly related (r = .74, p = < .01) to career salience. Sorority membership was found to be significantly associated to the woman being married (r = .42, p < .05) or engaged (r = .57, p < .05) by the senior year. The authors found the work value entitled "utilizing special abilities" and "freedom from close supervision" correlated significantly (r = .50, p < .05) with career salience.

Subjects choosing atypical careers appeared to give high esteem to the value of "special abilities" and "high income," but rated values of "wanting to work with people," "helping others," and "suiting parents idea of success" lower than did those subjects choosing typical careers. The authors concluded that certain women were exposed to broader role definitions which possibly served to extend the number of life style choices available to them. Those subjects choosing atypical careers included this broader role definition in their life plans. In another report of data on the same population, Almquist and Angrist (1971) reported that fewer career-salient women than noncareer-salient women belonged to sororities; were engaged or married in their senior year; perceived professors as having a more positive evaluation of their academic ability; and were most strongly influenced by college professors and occupational role models in choosing their occupations. In contrast to other studies, career salience was not significantly associated with educational level of either parent or with father's occupational level.

Trigg and Perlman (1976) investigated social factors and personality traits of women choosing nontraditional and traditional careers. Subjects were women choosing the nontraditional careers of medicine and dentistry (N = 78) and women with more traditional undergraduate degrees in

the Arts and Sciences (N = 153). A questionnaire designed for use in the study included need affiliation and need achievement scales from Jackson's Personality Research Form and demographic items. Results were analyzed by t-tests and revealed the nontraditional women to have: 1) significantly lower need affiliation scores (t = 2.06, $p < .01$) and high achievement scores (t = 5.4, $p < .01$); 2) placed less importance (t = 3.85, $p < .01$) on having children; 3) perceived that they could fulfill social and marital needs while pursuing a career; 4) perceived a more favorable attitude toward nontraditional careers in the attitudes of significant others; and 5) had parents with significantly higher levels of education. Trigg and Perlman concluded that the data supported the basic premise that social factors were important in the choice of a nontraditional career.

The hypothesis that women who plan to enter male-dominated careers (pioneers; N = 33) were more cognitively complex in social relationships than women who planned to enter female-dominated fields (traditionals, N = 50) was tested by Lawlis and Crawford (1973). A sample of 83 senior college women were administered a social complexity instrument. Results of t-test comparisons indicated that "pioneer" women had significantly greater social complexity patterns (t = 1.67, $p < .05$) than "traditionals." The

authors concluded that "pioneer" women were capable of a wider range of perception of roles and, therefore, have a less restrictive choice of vocational goals and that interpersonal complexity appeared to be a factor in vocational choice.

A study to identify characteristics of randomly sampled college women intending to pursue nontraditional careers (N = 101) and those intending to pursue traditional careers (N = 321) was conducted by Karman (1973). Differences were examined in home and family background, personality characteristics, values and attitudes, educational achievement and aptitude, and educational experiences. Questionnaires were administered to each subject and stepwise multiple regression analysis identified predictor variables descriptive of nontraditionals. No statistical figures were presented in the report of the study. A brief summary of major group comparisons revealed that women with nonstereotypic aspirations: 1) came from homes in which a higher income was reported; 2) had mothers who had reached higher levels of education; 3) were more theoretically oriented; 4) held more liberal attitudes toward society in general; 5) were higher achieving students; 6) expressed a stronger liking for sciences and mathematics; 7) maintained higher academic records; 8) tended to have more communication

with faculty members; 9) saw their college experiences more in terms of vocational and liberal educational benefits; 10) participated in college to a greater degree in social service and academically oriented activities; and 11) were less involved in creative activities such as art and music.

Career salience and career commitment

Masih (1967) studied men (N = 68) and women (N = 119) college students on the importance of career to the individual by measuring elements of career saliency (the relative importance of work and career). The instruments administered to the subjects included the Edwards Personal Preference Schedule, the Guilford-Zimmerman Temperment Survey and the Strong Vocational Interest Blank. Results of analyses showed men to score significantly higher (χ^2 = 55.48, $p < .001$) than women on career salience. High career-salient women as opposed to low career-salient women were found to have significantly higher (t = -2.17, $p < .05$) needs for achievement and endurance. Similarly, high career-salient women also expressed a significantly higher (t = -2.80, $p < .05$) desire for fame and prestige than did low career-salient women. High career-salient women showed a career motivation pattern as high as ones displayed for men, with low career-salient women scoring far below low career-salient men. Masih concluded that high career-salient persons are less interested in the opposite sex, were more

inclined to endure in terms of occupational interest, and were more concerned with prestige and less concerned with steadiness in terms of work values. Somewhat similar findings were reported from the research of Greenhaus (1971).

Simpson and Simpson (1961) compared the values and sources of personal influence which affect the occupational choices of career-oriented and noncareer-oriented college women undergraduates. Questionnaires devised for use in the study were administered to 111 women who declared themselves to be either career-oriented (N = 34) or noncareer-oriented (N = 77). The career-oriented subjects chose occupations in general areas (communications and sciences) while noncareer-oriented subjects were heavily concentrated in general cultural occupations, especially teaching. More of the career-oriented subjects reported having a more difficult time making a definite decision to enter their chosen occupations than noncareer-oriented women. Career-oriented women more often stressed income, prestige, and the kind of work itself and were more influenced by teachers and those they admired and less by parents, relatives, and peers.

Simpson and Simpson (1961) suggested that career-oriented women gave more thought to the decision of combining a career and family and were therefore able to discriminate more accurately between the importance of different values to them, especially because they were the

only women in the sample having made definite plans to continue working after marriage.

Career commitment in college women was investigated by Harmon (1970) with 169 women ten years after their college entrance. Each of the subjects was given the Strong Vocational Interest Blank during their first year in college in order to determine their level of career commitment. The subjects then were contacted after graduation to obtain biographical information related to career commitment in order to determine how career-committed women differed from those who were not as committed. A t-test analysis was used. Results found the career-committed group to have significant differences from the not as committed in the following ways: 1) earned higher college degrees ($t = 5.7$, $p < .05$); 2) worked more years after leaving college ($t = 10.5$, $p < .05$); 3) married later ($t = 4.7$, $p < .01$); and 4) had fewer children and had then later ($t = 6.9$, $p < .05$). The career-committed subjects also planned to continue working or planned to return to work when their children were older, while the noncommitted group planned to work only when their children were grown or if it became financially necessary.

White (1967) investigated elementary education teachers ($N = 143$) on levels of career commitment as compared to differences in their background experiences. The subjects were in their first year of teaching following college

graduation and were assessed on their level of career commitment utilizing a career commitment scale devised for use in the study and a background information questionnaire. Data were subjected to analysis of variance. Significant differences were found for subject responses on four social variables. Career commitment scores were significantly higher for the following: women whose mothers had a history of working outside the home ($f = 25.13$, $p < .01$); women who were partially self-supporting while in college ($f = 5.27$, $p < .01$); women who were from working class homes ($f = 5.43$, $p < .01$); and women who were married ($f = 4.25$, $p < .05$). The relation of marital status to career commitment did not provide support for the hypothesis that career commitment and marriage were not compatible. In an earlier report with the same subjects, White (1966) reports that a factor in the high rate of loss from the teaching profession among female teachers is their low degree of commitment or involvement.

Family variables

Maternal employment, perceived maternal satisfaction, goodness of mothering, and sex role conceptions were studied by Altman and Grossman (1977) as these variables related to future life plans of college senior women. Daughters of working mothers ($N = 25$) and daughters of nonworking mothers ($N = 26$) were administered a Sex-Role Stereotype

Questionnaire and Inventory of Feminine Values, a Maternal Satisfaction and Goodness Scale, and a Life-Plan Questionnaire. Data were subjected to analysis of variance. Daughters of working mothers scored higher ($\underline{f}$ = 19.12, $p < .01$) on career orientation than did daughters of nonworking mothers. Higher perceived maternal satisfaction and maternal goodness significantly correleated ($\underline{r}$ = .48, $p < .01$) with low career orientation for the nonworking sample. For daughters of working mothers, perceived maternal dissatisfaction correlated significantly ($\underline{r}$ = .42, $p < .01$) with high career orientation but other satisfaction measures showed no relation to career orientation. Daughters of working mothers displayed broader sex role conceptualizations than did daughters of nonworking mothers. Support for the broader sex role orientations and dissatisfaction of feminine role values for career-oriented women also was found in a study conducted by Rapaport and Rapaport (1971).

Goodale and Hall (1976) examined work values and parental influence as mediators of the relationship between plans for college and career of 437 high school sophomore boys and girls. A questionnaire devised for use in the study was administered to the subjects and results were analyzed by a path analysis. Results revealed that perceptions of parental interest in school work and parental hopes for college attendance served as significant

(z = 4.03, $p < .01$) mediators, while perceived parental pressure and involvement did not. Girls perceived less (z = 2.9, $p < .001$) parental interest and pressure regarding academic performance than did boys. Although the study was conducted with high school students, results provided support for the hypothesis that parents have lower expectations for girls.

Oliver (1975) compared career-oriented and homemaking-oriented college women on variables of parental attitudes and parental identification. The Adjective Check List, a revised version of the Hoyt and Kennedy (1958) questionnaire, the Family Relations Inventory, a Parental Description Survey, the Quick Word Test, and a biographical data sheet were given in two sessions to the 149 female college subjects. T-test analysis of the data revealed that career-oriented subjects perceived significantly less (t = 3.01, $p < .01$) father acceptance than did homemaking-oriented subjects. Oliver concluded that greater father identification rather than mother identification was significantly influential in developing the relatively higher levels of achievement associated with stronger career commitment.

Siegel and Curtis (1963) investigated familial variables as they may relate to future employment for 43 randomly selected college women. Information obtained from interviews was coded to yield measures of work orientation for

each subject. Also obtained were socioeconomic status, parent's views on the purposes of college, mother's work orientation, parents' educational level, and parents' attitudes toward importance of education. The data were subjected to Spearman-rank correlation analysis. Results indicated only mother's work orientation to be significantly correlated with daughter's work orientation. Most of the subjects stated they intended to marry and to work, but gave no clear plans beyond the period of involvement of childrearing. The authors noted that the small sample size and homogeneity of the sample may have operated to depress some of the observed correlations.

Multidimensional research

Richardson (1974) investigated the dimensions of career and work orientation in college women. Fourteen presumed measures of career-orientation, an addition to Super's Work Value Inventory were administered to 100 subjects. The career orientation variables included: extent of work in life plans, role values, desire to work, educational aspiration, field of occupational choice, level of occupational choice, certainty, occupational information, and work values.

Procedures used to examine the relationships among the 14 variables included Pearson product-moment correlation, one-way analysis of variance, and chi-square analysis. For

some results no statistical figures were reported.

Results of the Richardson (1974) study indicated that career orientation could best be viewed as a multidimensional construct in which motivation to work and role values are central. The primary dimension appeared to be the extent to which the women viewed work as central to their future life. The second major dimension consisted of variables relating to work role. Richardson suggested that major orientations toward work could be identified in the dimensions of career versus work orientation. It appeared that career-oriented women deviated from the traditional feminine role in that they had long-term career goals which were central to their future plans. Work-oriented women appeared to have integrated the career and homemaking roles as a compromise to fulfill both needs. In contrast to career-oriented women, work-oriented women had more well-defined occupational goals based on more concrete knowledge of their occupational fields and personal expectations. Career-oriented women appeared to seek more intrinsic work values and made decisions about future role orientations before they entered their chosen occupations. Work-oriented women sought both intrinsic and extrinsic work values, thereby resembling both career and noncareer oriented women. Work-oriented women did not deviate to the same extent from the traditional feminine role but entered

those traditional feminine occupations (teaching) considered compatible with home and family responsibilities. Richardson suggested that it may be work-oriented women who were at a higher stage of vocational development that career-oriented women in that the former had more well-defined occupational aspirations which reduced role conflict.

In a study of 200 senior college women, Tangri (1972) investigated determinants of non-sextypical occupational choices (role innovation). Subjects were randomly selected from a larger population of 350 women and were administered a projective needs scale, a role innovation scale, and a questionnaire concerning background information. Results of analysis indicated mother's education was not a significant influence on role innovation. However, mother's work history (if she worked outside the home) was significant to role innovation as was mother's level of role innovation in relation to her daughter's level. Role innovators had autonomous relationships with both parents rather than dependent relationships. Motivation to perform to capacity and overall career commitment were found to be significantly correlated with subjects' role innovation. Faculty and female college friends were reported as providing role support, but maternal role models were the most influential on the role innovator.

Research on Role Expectations

Studies on role expectations as they influence vocational choice in college women are considered in this section. Also reviewed are studies assessing differences between college women choosing work outside the home and women choosing homemaking as a career. Research on role expectations has been conducted on women already working in the labor force (Eyde, 1968; Mulvey, 1963; Nagely, 1971; Rossi, 1967; Warren, 1959; Watley & Kaplan, 1971; Weil, 1961).

Role expectations

Hewer and Neubeck (1964) surveyed 4,283 freshmen college students (2,729 men and 1,554 women), to evaluate attitudes toward married women working outside the home. A questionnaire devised for use in the study was administered to the subjects in group situations. Data were subjected to correlational analysis. No statistical figures were reported. Reported results are that a majority of the subjects most frequently accepted the traditional nurturant role for women, and that the husband was responsible for the financial support of the family. Women respondents were less accepting of this than men but seemed to agree that it was most acceptable for women to work outside the home only to increase the comfort and well-being of their families.

To represent the developmental stages of vocational maturity, Matthews and Tideman (1964) selected a cross-sectional population of adolescent and young women as a group in which to explore attitudes toward career and marriage. Data were obtained from young women aged 13-20 years utilizing a career history sheet and a set of attitudinal scales. Data were subjected to intercorrelation of item scores and cluster analysis. Results of the study indicated that the effect of attitude toward career and marriage differed at three developmental stages: 1) early adolescence; 2) late adolescence; and adulthood. The authors noted that a pseudo-career drive appeared in some girls in early adolescence but the change toward a more career-oriented lifestyle appeared to take place during late adolescence and young adulthood. It was suggested that the major attitudinal themes affecting lifestyle during these developmental periods were: 1) woman's impression of the male's reaction to the use of her intelligence; 2) conflict over the possible position of dominance of men at work and the "place" of women in the home; 3) conflict between family and work demands upon the time of a wife and mother; 4) anxiety over timing of dating and marriage; and 5) issues over the traditional feminine role of women.

Mintz and Patterson (1969) investigated marriage and career attitudes of women in the selected college curriculums of teaching (N = 39) and occupational therapy (N = 19), both considered traditional professions, and women in the sciences (N = 24) traditionally considered male-dominated professions. A Likert-type questionnaire on attitudes toward marriage, motherhood, homemaking, and educational and professional roles was administered. Results of t-test comparisons found students in the more traditional majors to be more strongly oriented toward marriage and family (t = 2.6, $p < .05$). No group completely rejected the marriage and family role, or considered a career to be the major goal of their lives. Those students aspiring toward the bachelor's degree only were significantly more oriented toward marriage and family (t = 6.3, $p < .01$) than were subjects aspiring for the master's or doctoral degrees. Comparisons of the different groups found those in occupational therapy and education aspiring to fewer master's and doctoral degrees than those in the sciences. In a similar study, Richardson (1975) examined the relationship of 97 college women's self-concepts and role concepts to career orientation variables and concluded that women who deviated from traditional female roles appeared to have more difficulty over time with self and role concepts.

Role expectations of freshman and senior women in Home Economics and Liberal Arts curricula were investigated by Howe (1974). A final sample of 325 subjects were given the Role Expectations and Women Questionnaire. Results of cluster analysis revealed the following: 1) senior students were more oriented toward marriage, career, and professionalism than were freshman students; 2) freshman students were more interested in community participation after college than were senior students; 3) Home Economics students held more traditional views toward marriage and homemaking than Liberal Arts students; and 4) Home Economics students expressed more traditional expectations than Liberal Arts students and expected to be more active in community activities.

Elton and Rose (1967) studied the significance of personality in the vocational choices of college women. The authors selected 1,965 freshman women students at the University of Kentucky as subjects and utilized the Omnibus Personality Inventory, Form C, and the ACT as a measure of scholarship aptitude. Multiple-discriminant analysis was chosen to evaluate the data. Results showed that personality variables were related to specific categories of vocational preference.

Career and marriage values and the values of eight significant-other persons were studied by Edwards (1969).

Student nurses (N = 322) and student teachers (N = 250) were asked to rate marriage and career factors on a nine-point scale ranging from high value on education and career to high value on marriage and family. Each subject also indicated a preference for one of three life plans: marriage-oriented, career-oriented, or a compromise of career and marriage-family. Multiple-discriminant function analysis of the three life-plan groups was performed for each of the two student groups. Results of the study found that for both student teachers and student nurses the perceived values toward career and marriage of significant-other persons showed no significant differences across the three life plans. Edwards concluded that value structures and the decisions they influence were not a function of the values held by significant-others. Edwards stated that career and life plan values were the result of the individual's own mediating capabilities.

Steinmann, Levi, and Fox (1964) studied the self-concept of college women compared to their concept of ideal woman and men's ideal woman. Three forms of the Inventory of Feminine Values was administered to 75 subjects attending a metropolitan college. Correlational analysis suggested that women perceive themselves and their ideal woman as essentially alike with equal components of active and passive orientations but they perceive men's ideal woman as significantly more

passive and in a subordinate role in both parental and family roles.

The relationship of self-concept and parental identification to a woman's vocational interests was investigated by White (1959). Self-concept and parental identification were assessed in 81 college women by means of the Q-sort technique. Subjects and their parents sorted 75 statements describing their perceptions of the ideal achievement for the subjects. Family background information was also obtained and the Strong Vocational Interest Blank was completed by each subject. An analysis of the Q-sorts revealed significant differences in self-concept and maternal identification between subjects adhering to traditional roles and those subjects found to be more career-oriented (t = .56, $p < .05$). The traditional subjects were found to be more satisfied with themselves and identified more closely with their parents.

Selection of a career over homemaking

Studies assessing variables associated with the choice of a career over homemaking represent a majority of the early research on the vocational choices of women. Profiles of Strong Vocational Interest Blank measures and assessment of personality variables have been the major focus of several studies.

A longitudinal investigation to assess differences between career-oriented (N = 29) and homemaking-oriented (N = 52) subjects was conducted by Gysbers, Johnson, and Gust (1968). They identified subjects on the basis of their Strong Vocational Interest Blank profiles. In addition to the profiles, some demographic, attitudinal, and work pattern data were collected in evaluation of women assessed while in college and several years after graduation. Data were subjected to t-test analysis. In contrast to homemakers, career women were reported to: 1) prefer their daughters engage in a career or a combination of career-homemaker activities (t = 8.90, $p < .05$); 2) saw themselves as more impatient when personal needs conflicted with the needs of others (t = 14.95, $p < .01$); 3) display more skeptical beliefs concerning religion (t = 7.13, $p < .01$); 4) displayed more interest in news as opposed to women's magazines (t = 11.88, $p < .01$); 5) be less content with their own emotional adjustment (t = 11.67, $p < .01$); 6) derive more satisfaction from social interactions with men than women (t = 14.87, $p < .01$); 7) regard personal achievement as more important than regard from others (t = 14.87, $p < .01$); and 5) recall doing their school work to satisfy their own personal internal goals (t = 8.35, $p < .02$). Somewhat similar findings are reported by Hoyt and Kennedy (1958), Wagman (1969), and Rand (1968).

To investigate personality correlates of 132 college women majoring in Home Economics, Vetter and Lewis (1966) employed the Guilford-Zimmerman Temperment Survey. Each subject responded to an 11-point, Thurston-type attitude scale on which was indicated a preference for either a career in work outside the home or homemaking. The t-test statistic and chi-square statistic were used to analyze the data. Overall results suggested that homemaking-oriented subjects were more at ease in social situations, more self-assured, and more tolerant of people and things. Women who preferred a career outside the home appeared to be less well-adjusted and to have more emphasis placed on achievement by their parents ($\underline{X}^2 = 5.39$), began dating at later ages ($\underline{X}^2 = 8.7$), received material rewards for good grades ($\underline{X}^2 = 7.35$), and experienced mild disapproval of career plans ($\underline{X}^2 = 4.21$).

Kriger (1972) investigated the differences among three groups of women (N = 66): homemakers (HM), career women in female-dominated occupations (FDO), and career women in male-dominated occupations (MDO) on two variables: 1) perception of their parent's childrearing attitudes, and 2) level of achievement motivation. The control scale of the PARI and the Need Achievement scale of the EPPS were used. The data were analyzed utilizing Scheffé's test on the analysis of

variance. Results of the Need Achievement Scale revealed the FDO's scored higher on need achievement that HM's but lower than MD's. Results indicated that occupational choice and occupational achievement were a function of the subject's level of achievement motivation.

With the exception of Vetter and Lewis (1966), few studies of vocational development in Home Economics Students appear in published literature. Of particular interest to this researcher is an investigation by Cooper (1957), focused on characteristics of 99 Child Development majors at Iowa State University. The Guilford-Zimmerman Temperment Survey was administered and demographic data were gathered. Results showed Child Development majors to be generally from intact families, usually to have more than one sibling, to receive financial help from their parents, and to have chosen Child Development largely because of preparation for their own expected family life. Child Development majors were reported to be more feminine in orientation than most college women, more tolerant of actions and hostility of other people, and to have faith in social institutions.

Research on Work Values

Studies assessing work values have been primarily with populations of men (Berdie, 1943; Hegland, 1972; Kinnane & Gaubinger, 1963; Kinnane & Pable, 1962; Miller, 1956;

Super & Mowry, 1962; Super, 1962) or with high school students (Hales & Fenner, 1971; Perrone, 1965; Schwarzweller, 1960; Singer & Stefflre, 1954; Thompson, 1966). Studies of the work values of women are far fewer in number and are occasionally in studies (previously reviewed) assessing multiple dimensions involved in vocational choice.

Wagman (1965) investigated sex and age differences in occupational values held by high school seniors and college sophomores (N = 553), both males and females. The author suggested that the two sexes differ only in that men preferred to a greater degree a job where they can have the recognition of others (esteem) and the women preferred the job value of social service.

Merwin and DiVesta (1959) compared those women choosing a teaching career (N = 67) to those in other majors (N = 151) on the relative strength of four needs: achievement, affiliation, dominance, and exhibition. Two Likert-type need scales and a Likert-type Attitude Toward Teaching Career Scale were administered. Using the t-test of significance the following results were obtained: the teaching group had a significantly higher mean score (t = 2.5, $p < .01$) on the need for affiliation. The nonteaching group had a significantly higher mean score (t = -3.3, $p < .05$) on the need for dominance and achievement (t = 3.6, $p < .05$).

Kinnane and Bannon (1964) investigated perceived parental influence and work value orientation in college women. Results of the Strong Vocational Interest Blank and background information obtained on each subject found the single most important parental influence on the work value orientation to be that of the socioeconomic level of the family. Using the t-test of significance, no other variables were found to be significant for college women. The authors noted that daughters of lower socioeconomic families had significantly stronger work value orientations ($t = 2.36$, $p < .05$) than daughters of higher income families. They suggested that the stronger identification toward work was due to the subjects general "life value" or pro-work orientation.

To assess relationships between work values, attitudinal items, background factors and women's work motivation, a study was conducted by Eyde (1962). A Desire to Work Scale was administered to 70 college women seniors and 60 college women alumnae. A factor analysis of work value items produced a general factor (desire to work). On this factor, each group of subjects was separated into upper and lower halves according to their desire to work score.

Antecedents of high desire to work scores in the Eyde (1962) study were high activity involvement; desire for additional education; and consideration of minimum and adequate income of husband. Work values associated with the

high desire to work subjects were interesting-variety, and mastery-achievement, while among the low desire to work subjects, independence and social work were valued. Eyde concluded that work motivation and work values expressed by the alumnae were based on more realistic views or role demands of marriage and work and on the experiences of actual job participation.

Hendrix and Super (1968) investigated factor dimensions and reliability of Super's Work Value Inventory with high school males (N = 51) and females (N = 48). Item correlation analysis and a factor analysis were performed on the data. Results showed that for females at least three distinct factors emerged. Factor I consisted to situational job values (Economic Returns, Security, Surroundings, and Supervisory Relations). Factor II consisted of primarily intrinsic job values (Achievement, Altruism, Prestige, and Way of Life). The third factor was composed of occupational self-expression activities (Esthetic, Creativity, Independence, and Variety). The authors noted that the Way of Life value remained a fixed extrinsic dimension (Factor I) for men whereas for females Way of Life was associated with the intrinsic dimension (Factor II) or separated itself completely.

Summary

It would appear from the literature that for college women the choice of a particular occupation is dependent on a number of complex and interrelated elements. These general findings support the more recent theories of vocational choice for women such as those proposed by Psathas (1968) and Zytowski (1969). Career consideration variables important to the selection of nontraditional work by college women appear to include higher educational and professional aspirations, more definite career plans, higher occupational status, professional influence in the selection of a major, and a working mother. Broader role definitions, less emphasis on family and parental involvement, lower affiliation and higher achievement needs, less self-assurance, and less traditional views toward marriage and family appear to characterize those women selecting a more nontraditional career. Work values associated with women choosing a nontraditional career appear to include the values of high work status and salary, achievement, job security, positive supervisory relations, independence, variety, and a flexible way of life component.

METHODOLOGY

The purpose of this study was to investigate vocational choice in college women majoring in Child Development, Food and Nutrition, the Social Sciences, and the Biological Sciences. A Work Interest Questionnaire (WIQ) was developed to assess the components of role expectations, career considerations, and work values.

Subjects

The subjects involved in the study were 476 junior and senior students enrolled at Iowa State University in Winter Quarter, 1980. Four groups of majors included: students enrolled in Child Development; Food and Nutrition; the Social Sciences; and the Biological Sciences.

One-hundred-two junior and senior students from Child Development were administered the WIQ. Additionally, forty-five junior and senior students from Elementary Education also were given the WIQ. These students in Elementary Education were included in the population because they were attending those classes in Child Development in which the WIQ was administered and it was thought that the similarity of interest between Child Development and Elementary Education might justify a comparison of responses from students in these two populations. However, because the Elementary Education majors are from another College and their cur-

riculum is somewhat different from Child Development, the Elementary Education majors are not included in the analysis of this study.

The second group, Food and Nutrition majors, consisted of 18 sophomores, 47 juniors, and 49 seniors for a total of 114. Subgroups of the Food and Nutrition majors included 4 in Dietetics, 38 in Food Science, 6 in Community Nutrition, and 66 in General Food and Nutrition. Some sophomores who were almost juniors were included in this group because not enough junior and senior students were available to meet the minimum number of 100 subjects in each major group desired for factor analysis.

The Social Sciences group consisted of a total of 109 juniors and seniors with 52 students in Psychology, 51 in Sociology, 6 in Leisure Services, and 6 in Family Environment--Family Services. For purposes of the factor analysis, Family Environment subjects were excluded because their primary curriculum is located in the College of Home Economics and presented an element of possible contamination to results from analysis with the other groups (Child Development and Food and Nutrition) representing Home Economics. Data were collected from the Family Environment students because they were in classes where data were gathered and elements of their responses may prove interesting should some future analysis be done beyond the factor analysis for this study.

The final group of majors consisted of 55 juniors and 51 seniors in the Biological Sciences for a total of 106 subjects. This group included 15 in Zoology, 12 in Pre-Physical Therapy, 13 in Pre-Veterinary Studies, 11 in Fish and Wildlife Biology/Animal Science, 5 in Pre-Nursing, 20 in Biology, 7 in General Distributed Studies, 16 in Bacteriology, and 7 in Botany/Plant Pathology.

Instrumentation

A Work Interest Questionnaire was devised for use in this study and consisted of 120 items organized around the areas of career considerations, role expectations, and work values. A copy of the WIQ may be found in Appendix A.

Each of the items was rated by the subjects utilizing a 1-99 point scale. In the sections entitled "Reasons for Considering Your Major," "Career Considerations," and "Future Role Expectations" subjects were asked to rate "how true" each item was for them. Subjects were asked to rate "how important" each item was for them in the section entitled "Work Components".

Each of the five sections for the WIQ (reasons for considering your major, career considerations, future role expectations, work components, and demographic questions) was chosen for inclusion in the WIQ based on their relevance for assessing components considered important to vocational choice by college women. The multi-dimensional approach

now more widely accepted for assessing vocational choice in women necessitiated the formulation of an instrument which encompassed several elements.

The interrelatedness of a woman's perceived personal roles and her choice of work, as determined in the literature, appears to justify the use in the WIQ of items relating to role expectations and career considerations of women. Items based on perceived parental satisfaction and the variables of parental background as related to women's vocational choices also are present in the literature and thus these types of items were included in the WIQ. The inclusion of items on work values provides a new approach to the assessment of work choice. Little research has been done on work values of women as they might relate to both role expectations and variables of career consideration. The investigations of Zytowski (1970) on this variable appear promising and give reason to include a section on work values in the WIQ.

Items assessing the reasons subjects chose their major were taken from two sources. Cooper (1957), in assessing characteristics of Child Development majors, proposed 20 items most specifically related to choice of major by those in Child Development. In order to validate and further expand this list for use with other majors, the Johnson Home Economics Inventory (Johnson, 1955) was reviewed for

additional items. Johnson (1950) developed an instrument to determine the professional interest of home economists and Home Economics students. The Johnson Home Economics Inventory (JHEI, 1955) resulted from the initial project with validation studies being conducted by Fife (1955), Harris (1957), Rachut (1958), and Scholl (1955). The JHEI was widely utilized in the late 1950's and 1960's to assess overall vocational interests particular to Home Economics. The JHEI provides a validation of sorts for the items selected from Cooper's list to be included in the WIQ as well as providing some additional items not contained in the Cooper study.

Questions from the Student Information Form for the years 1966-1976 also provided sources for Work Interest Questionnaire items in reasons for selection of major. Items from the University of Oregon "Student Planning Survey No. 3E" also were considered for use in the section concerned with the selection of major. These two survey questionnaires have been used at many colleges and universities to assess student activities and reasons for attending college. Opportunity for students to relate additional considerations in their choice of major was provided in the WIQ through open-ended questions.

The twenty-one career consideration items consisted of statements designed to assess the student's satisfaction

with major, level of educational aspiration, degree of career commitment, desire to work, parent's expectations for work and family responsibilities, and parent's satisfaction with chosen major. The questions and statements used in this section were adapted from instruments developed by Eyde (1962), Greenhaus (1971), Johnson (1955), Inman and Healy (1972), and Weis and Hubbard (1973).

Items selected for use in the section concerned with future role expectations also were adapted from items found in the instruments developed by Eyde (1962), Greenhaus (1971), and Johnson (1955). Role expectation items on conditions under which one might work were taken almost entirely from the Inman and Healy instrument. The remaining items in the section also were adapted from the same instrument although the format and several wording changes were made. In consulting the other two instruments used for reference in developing this section replications of the items already selected for inclusion in the WIQ were found.

The work value items were adapted from a work value assessment instrument developed by Zytowski (1976) and utilized in a study of work values by Hegland (1972). The WIQ utilizes 36 work value items while the original Zytowski instrument contains 35 items. In order to validate the items included in the Zytowski scale, several work value instruments (Herzberg et al., 1959; Rosenberg, 1957; Schaffer,

1953; Stefflre, 1959; Super, 1957) were consulted and compared with the Zytowski instrument. Items on the Johnson Home Economics Inventory were also reviewed to further validate the inclusion of work value items on the WIQ. Of the instruments consulted the format of the Zytowski instrument was felt to be the most comprehensive and most viable for use with the present target population. Even so, some of the items on the Zytowski instrument were felt to be ambiguous and/or redundant and were edited for use in the WIQ. In several cases the "topic word" was left as it was originally but the definition was changed for clarity and relevance to the target population for this study.

Items in the demographic section related to education level of parents, extent of mother's work experience and expected level of the subject's educational achievement. Also included in this section were open-ended questions concerned with career considerations and role expectations.

To further justify the inclusion of items in the WIQ and assure readability and clarity of instructions and individual items, the WIQ was subjected to several evaluations. A preliminary draft of the instrument was given first to 10 undergraduate students not among the target majors. The students were selected because they were not among but were similar to majors considered for use in the study. Their responses were sought in order to support item wording and

item breadth. These students were asked to evaluate the WIQ on a specifically developed evaluation form located in Appendix B. Among the questions asked of these students were "What items sould not be asked on the questionnaire," and "What additional items might be included." These students also were asked to complete a series of open-ended questions, found in Appendix C, and designed to tap their responses for selection of a major and their future career plans and to yield possible additional items for inclusion.

The WIQ also was given to 10 junior and senior women among the target majors, but not included in the final population for study. These subjects were asked to complete the WIQ and evaluate it according to the criteria suggested in the form found in Appendix C as well as to complete the open-ended questions found in Appendix B. Both of these preliminary groups provided information useful in evaluating the relevance of items found in the questionnaire. As a result of this review one question was added to the section concerned with future role expectations and several editorial changes were made.

The preliminary draft of the WIQ was then given to 5 graduate students and to 5 faculty members in Child Development to get a more sophisticated judgement of the items for use with undergraduate students and to review the overall readability and clarity of items and instructions.

Directions and questions given to the graduate students and faculty are found in Appendix D. As a result of these evaluations some additional changes were made in the wording of items and instructions and some items were added to the sections assessing reasons for selection of major and career considerations.

The preliminary draft then was administered to a pilot group of 22 freshman and sophomore students in an introductory course in Child Development. These students were administered the WIQ as if they were members of the target group and were asked to evaluate the questionnaire according to the criteria specified in the evaluation form found in Appendix C. As a result of these evaluations, again some editorial changes were made. Thus, the final version of the WIQ was the result of extensive literature search, adaptations from previous instruments, and editing from pretest results.

Procedures

Permission for using junior and senior students was obtained from the University Committee on the Use of Human Subjects in January, 1980. A copy of this Human Subjects application may be found in Appendix E.

Subjects were contacted through several different sources. Where possible, the heads of each department in which target subjects were enrolled were contacted and

names of instructors were obtained. An introductory letter to the department heads is located in Appendix F. Each of the instructors designated by the department heads was contacted and permission was obtained either to administer the WIQ directly to the subjects in the classroom during the regular class period, or to distribute the questionnaire to the subjects with an addressed, stamped, envelope attached. In the latter case the subjects completed the questionnaire outside of the class and returned it by mail.

In some departments where it was not possible to contact subjects directly in the classroom, the names of the subjects were obtained and the questionnaire was mailed to subjects. Persons in this group primarily were those in the Biological Sciences. The mailed questionnaires were accompanied by a cover letter explaining the study and the need for the subject's participation. A copy of the cover letter may be found in Appendix G. For those subjects having the WIQ administered or distributed to them in the classroom, a letter of explanation was read to each administration of the questionnaire. A copy of this explanatory letter may be found in Appendix H.

The data for this study were collected over a time period of six weeks in January, February, and March, 1980. The primary data collection took place in a three week period in January and February. Mailed questionnaires were

distributed throughout the data collection period. When it was determined that not enough returns were realized from the Winter Quarter students in Food and Nutrition, a decision was made to distribute 20 additional questionnaires to sophomores, juniors, and seniors during the first two weeks of Spring Quarter (March) of 1980. Questionnaires returned by mail were accepted until most of the data coding was completed.

Data Analysis

The data were punched according to the code sheet found in Appendix I. The open-ended questions (items 20 and 21, page 1; items 1 and 2, page 6; and item 16, page 7) were coded according to summarized responses which resulted from randomly drawing 160 questionnaires (40 for each student major group) and generalizing the response types.

The data were subjected to factor analyses within each of the four primary groups of majors: Child Development, Food and Nutrition, Social Sciences, and the Biological Sciences. In addition a pooled-within factor analysis was done.

RESULTS

The major focus of this study was to investigate vocational choice in college women majoring in Child Development, Food and Nutrition, the Social Sciences, and the Biological Sciences. Responses to a Work Interest Questionnaire (WIQ) developed for use in the study were subjected to a factor analysis. Demographic items also assessed on the WIQ were analyzed for subjects in each of the four target majors.

Table 1 presents basic demographic information about the subjects. The Child Development majors in the final sample numbered 102, and had a mean age of 21.33 years; the Social Sciences majors numbered 109, with a mean age of 21.39 years; 114 students were in the Food and Nutrition group with a mean age of 20.75 years; and the Biological Science majors numbered 106, with a mean age of 21.32 years.

Marital status for three of the four groups was essentially the same. A greater number of the Food and Nutrition majors were in the single category than were those from other majors. Students in all four of the groups desired at least two children, with the highest mean (2.80) for those in Child Development, and the lowest mean (2.16) for those in the Social Sciences.

Fewer students in the Biological Sciences group held sorority memberships. Most memberships were held by Food

Table 1. Information about Students

Variables	Major			
	CD (N=102)	Soc/Psy (N=109)	F&N (N=114)	Biol (N=106)
Mean age (in years)	21.33	21.39	20.75	21.32
Marital status (in %)				
Single	73	72	92	73
Engaged	17	16	6	15
Married	11	12	2	10
Divorced	0	1	0	2
Sorority membership (in %)	19	12	21	6
Children desired	2.80	2.16	2.50	2.30
Home community size (in %)				
Farm	27	18	34	26
2000 or less	10	17	12	10
2000-50,000	37	35	20	30
City suburb of 50,000+	9	6	15	14
Inner city of 50,000+	17	23	18	19
Mean income of parents[a]	3.28	3.19	3.54	3.37
Mean education of parents[b]				
Mother	2.96	2.98	3.22	3.03
Father	3.15	3.14	3.32	3.31
Education desired by students (in %)				
Bachelor's degree	62	32	54	50
Master's degree	33	49	42	26
Doctoral degree	5	19	4	25

[a]1=Less than $10,000; 2=$10,000-$20,000; 3=$20,000-$30,000; 4=$30,000-$40,000; 5=More than $40,000

[b]1=Some high school; 2=High school graduate; 3=Some college; 4=Bachelor's degree; 5=Master's degree; 6=Doctoral degree

and Nutrition and Child Development majors, the two groups from the College of Home Economics.

Size of the home community was similarly represented across the four groups of majors. There was, however, a noticeable tendency for the Food and Nutrition majors to come more frequently than the other majors from farms.

All four of the groups of majors reported a mean family income in the category of $20,000 to $30,000. The mean educational level for mothers' of sampled students was fairly similar across groups and represented some college work but less than a bachelor's degree. Mothers of Food and Nutrition majors had slightly more education on the average than did the other mothers. Again, for fathers the mean educational level was similar for each group with a slight advantage to fathers of Food and Nutrition and Biological Science majors. Fathers' mean education was greater than mothers' in each group of majors but still averaged below the bachelor's degree level.

More of the students in Child Development desired to obtain only the bachelor's degree as compared to those in Food and Nutrition. A greater number of Food and Nutrition majors aspired toward the Master of Science degree than did Child Development majors. More Social Science and Biological Science majors viewed the doctorate degree as desired than did students majoring in either Child Development or Food

and Nutrition, the two majors in Home Economics.

Table 2 presents information about students' selection of major. For Child Development and Food and Nutrition majors a majority declared their present majors in their freshman year. Those in the Social Sciences seemed to declare the major more frequently in the sophomore year and those in the Biological Sciences were somewhat more evenly divided across the freshman and sophomore years with a sizeable percent (23) declaring in the junior year.

More students in Child Development (54%) and Food and Nutrition (61%) reported never having changed their present majors than did students in either the Social or Biological Sciences. The largest percentage of those in the Social Sciences (42%) reported no change in major, but 36% reported changing once. For those in the Biological Sciences, over half reported changing their major twice or more with 41% reporting a change three or more times.

When asked if they would choose the same major again, better than 80% of the students in all four groups indicated that they would. For those students indicating they would not choose the same major a second time, a majority of the subjects in Child Development (53%) indicated limited job opportunities as their major reason. Students in the other majors, and particularly in Food and Nutrition and the Biological Sciences indicated frustration with courses as

Table 2. Student's Selection of Major

Variables	Major			
	CD	Soc/Psy	F&N	Biol
	(in percent)			
Year declared				
Freshman	52	33	59	42
Sophomore	35	47	25	35
Junior	13	19	16	23
Senior	0	1	1	1
Changed major				
None	54	42	61	37
Once	27	36	25	11
Twice	10	12	6	11
Three or more	9	10	8	41
Select major again	84	82	84	87
Reasons for not choosing same major				
Limited jobs	53	17	0	17
Frustration with courses	35	61	83	78
Changed interest	12	22	17	5
Attended ISU expressly for major	57	28	75	47
Attended ISU for other reasons				
Study for different major	44	29	17	41
State school	5	9	3	4
Family attending	12	12	15	7
Location	15	22	14	7
Reputation	15	12	31	20
Graduate work preparation	2	1	0	3
Social life	5	1	3	11
College education	22	14	17	7

their major reason for not choosing the same major again. Students in Child Development were noticeably less likely to indicate that such frustration would be a reason for changing major.

Seventy-five percent of Food and Nutrition majors responded that they came to Iowa State University expressly for their major, with 57% in Child Development, 47% in Biological Sciences, and 28% of Social Science majors. Students also were asked why they came to Iowa State if not to major in their chosen fields. A large percent of students in Child Development (44%), Social Sciences (29%), and the Biological Sciences (41%) reported that they came to study initially in another field. Among Food and Nutrition majors the good reputation of Iowa State was given as the primary reason for attending by 31%. Other family members attending Iowa State, the location of Iowa State, and the reputation of Iowa State also were found to be major reasons for attending Iowa State for students in each of the majors.

Information about work history of mothers of the students is presented in Table 3. The patterns of mothers' work appear to be fairly similar for each group of students. Among all four groups, the greatest percentage of mothers who worked outside the home were reported to be in part-time employment. Mothers of Child Development majors were reported to have worked more years in part-time employment

Table 3. Work History of Mother

Variables	Major			
	CD	Soc/Psy	F&N	Biol
Mother worked outside the home (in percent)				
Part-time	33	28	26	32
Full-time	20	27	20	26
Both full- and part-time	31	20	8	16
Mean years mother worked outside the home				
Part-time	2.27	1.83	1.71	1.62
Full-time	1.48	2.76	2.36	3.74
Subjects' age when mother worked outside the home (in percent)				
Preschool years	19	29	28	38
Grade school years	23	13	21	21
Junior high years	40	29	35	17
High school years	17	28	16	24

(2.27) as opposed to full-time employment (1.48 years). Mothers of students in the Biological Sciences, Food and Nutrition, and the Social Sciences, were reported to have worked more years in full-time employment than in part-time employment.

For those students having mothers working outside the home the greatest percentage of Child Development majors (40%) and Food and Nutrition majors (35%) reported their mothers worked during their daughter's junior high years followed by 23% of Child Development majors reporting mother working during their daughters' grade school years. Social Science majors reported their mothers worked equally as much during preschool, junior high and high school years, with Biological Science majors reporting more of their mothers working during the preschool years followed by work during their high school years.

Information on the students' plans for work following graduation is presented in Table 4. For those in Child Development, the greatest percentage (39%) indicated they would like to be kindergarten and/or preschool teachers, followed closely by 37% of the students desiring work with hospitalized or handicapped children. Students in the Social Sciences indicated a desire to work in a social service agency (42%). The greatest percentage of Food and Nutrition majors desired work in three areas: food product development

Table 4. Student's Plans for Work Following Graduation

Variables	Major			
	CD	Soc/Psy	F&N	Biol
	(in percent)			
Hospitalized/handicapped children	37	1		
Preschool/kdgt teacher	39			
Preschool director	9			
Elementary teacher	2			
Extension service	4	1		3
General social work	5	42		
Medical social work		6		
Personnel management		10		
Counseling/clinical psych	1	18		
High school teacher		5		7
Nursing				8
Physical therapy				11
Research	1	2	1	15
Lab technology				16
Medical technology				6
Physician's assistant				3
Veterinary medicine				12
Community nutrition			11	
Food product development			22	
Clinical dietetics			20	
Institutional dietetics			22	
Management/administration			11	5
Therapeutic recreation		4		
Graduate school	1	6	2	5
Unknown	1	7	10	5

(22%); clinical dietetics (20%); and institutional dietetics (22%). Majors in the Biological Sciences reported a desire to work in several occupations. Highest percentages were found for physical therapy (11%); research (15%); laboratory technology (16%); and veterinary medicine (12%). Of all groups, the highest percentage (10%) of students having no idea of future occupational desire were those in Food and Nutrition.

Scatterplots

Preliminary to the factor analyses, F-value statistics were computed for items across the groups of four majors. In addition, scatterplot diagrams were done for all 96 items on the WIQ utilizing each of the four student groups. It was determined that between group differences were as usefully visible by looking at outlyer items on the scatterplots as they were by F-values and the former mode of presentation was chosen for purposes of this dissertation. Scatterplots are a method of presenting between group differences. Since this function differs from the examination of within group differences by factor analysis, presented later, some examples of the between group differences will be presented. Three tables have been prepared to compare responses of Child Development majors to responses of students in each of the other three majors. The six scatterplots are located in Appendix J.

Tables 5, 6, and 7 depict outlyer comparisons for Child Development majors with Social Science majors; Child Development majors with Food and Nutrition majors; and Child Development majors with Biological Science majors, respectively. From these comparisons it is evident that women in all four majors have the following attitudes very much in common:

They would defend their choice of major.

They believe their parents do not exert pressure on them to change majors to more prestigious ones.

They would work outside of the home if it became financially necessary.

They believe marriage is forever.

They believe husbands and wives should share equal responsibility for family.

Child Development, Social Science, and Biological Science majors did not feel an academic advisor was influential in helping them chose their major. Child Development and Social Science majors agreed that they would reject jobs that would not permit people contact and neither Child Development nor Food and Nutrition majors, the two groups from Home Economics, expected to work outside the home continuously throughout their life.

Child Development majors consistently ranked jobs working with special groups of people much higher than did majors

Table 5. Outlyer Comparisons by Mean Responses of Child Development and Social Science Groups to WIQ Items

Responses	Item Code #	Item
High for both groups	11	occupations allow work with people
	29	plan work in related feild
	38	defend kind of work I plan to do
	41	would work if no children
	44	would work if financially necessary
	54	husband & wife share family responsibility equally
	57	marriage if forever
	75	want intellectually stimulating work
Low for both groups	8	advisor recommended the major
	9	some friends in the same major
	21	parents want more worthwhile major
	22	parents want more prestigious major
	63	want work with minimal people contact
High for CD but low for SS	96	crafts with hands
	97	work with special people
Low for CD but high for SS	19	jobs will be available
	35	plan on graduate school within 5 years
	43	would work with children 2-6 years
	52	I plan to work full time
	79	work that allows travel

Table 6. Outlyer Comparisons by Mean Responses of Child Development and Food and Nutrition Groups to WIQ Items

Responses	Item Code #	Item
High for both groups	20	my parents are satisfied with major
	38	would defend major against criticism
	44	would work if financially necessary
	54	husband & wife share family responsibility equally
	56	expect to assume motherhood role easily with little preparation
	57	marriage is forever
Low for both groups	3	found no other major to be as easy
	22	parents want more prestigious major
	31	expect to work throughout life
High for CD but low for F & N	97	work with special people
Low for CD but high for F & N	15	occupations pay well
	79	work that allows travel
	87	work that allows me to stay clean and neat

Table 7. Outlyer Comparisons by Mean Responses of Child Development and Biological Science Groups to WIQ Items

Responses	Item Code #	Item
High for both groups	29	plan work in related field
	38	would defend major against criticism
	41	would work if no children
	44	would work if financially necessary
	54	husband & wife share family responsibility equally
	57	marriage is forever
Low for both groups	3	found no other major to be as easy
	8	advisor recommended the major
	21	parents want more worthwhile major
	22	parents want more prestigious major
High for CD but low for BS	7	major prepares for marriage/family
	62	work which allows for variety
	97	work with special prople
Low for CD but high for BS	15	occupations pay well
	82	meticulous work with care for detail

from any of the other three groups. Child Development majors also felt that their major prepared than for marriage and family life, in contrast to those in the Biological Sciences, who did not feel so about their major. In relationship to working with crafts, a skill required in working with children, Child Development majors ranked the skill much higher than did those in the Social Sciences.

Salary of a position is apparently of less concern to Child Development majors than to those in Food and Nutrition and the Biological Sciences. Food and Nutrition majors apparently value work that will keep them clean and neat more than do Child Development majors, and Biological Science majors desire work which requires meticulous care for detail more than Child Development majors. Child Development majors appear not to plan on working outside the home while they have preschool aged children, whereas Social Science majors plan on working outside the home regardless of the ages of their children. Similarly, Social Science majors value opportunity to go to graduate school in the near future whereas Child Development majors do not. Opportunities for travel in their work appeals to Social Science majors and Food and Nutrition majors more than it does to Child Development majors.

Factor analysis

On the basis of responses from 431 students, iterative least square analyses were performed on 97 items from the Work Interest Questionnaire (WIQ). Separate analyses were done for each student group as well as for the pooled-within group. A correlation matrix was used for the initial rotation and this was followed by a Procrustes rotation as described by Wherry (1959) in order to rotate each solution to the same basis. The number of factors used was determined by the relative size of the latent roots combined with intuitive judgement regarding the meaningfulness of the solution. The factor analyses seemed to identify eight factors.

The item numbers on the tables refer to the coded items rather than the original item numbers on the WIQ. The appropriate coded numbers have been written beside each item on the WIQ found in Appendix A. For the purposes of identifying the WIQ factor items from the analyses only Area I type items are utilized if possible. Area I is defined as items that load high (.40 or greater) on the factor in question, that are in a consistent direction for all groups, and that do not load on any other factors (i.e. are without inter-factor contamination). Where there are insufficient items of the Area I type, then some of the highest loading Area II type items were included in the factor. Area II type

is defined as items that load high for less than all groups and are in a consistent direction with or without inter-factor contamination. Area III type items are defined as those that load high for less than all groups and are in a consistent direction but contaminate in other factors. Area IV type is defined as items that load less than high for all groups and are inconsistent in direction and contaminate in other factors. In no case were Area III type or Area IV type items used for definition of factors.

Factor analysis as described was chosen as the appropriate statistical technique to demonstrate within group differences. The choice of items of Area I and Area II types allows for progress toward construction of a factored instrument. As such, the instrument has promise in future assessments of the complexities of role expectations, career considerations, and work values inherent in women's vocational choice-making. Generally the process of factor analysis with these data reveals more similarities than differences for the four groups of majors. However, some group differences are of interest and can be seen from examination and comparison of the loadings across groups for items representative of the Area III and Area IV type. Examples of these latter types of comparisons will be discussed as well as will be the factors of similarity which emerged.

Table 8 shows item loadings for Factor I. This factor involves perceptions of work in which is provided original thinking, intellectual stimulation, decision making, the sharing of feelings, and active involvement. The factor might be labeled "Work Autonomy." Items in the factor are as follows:

Coded Item (CI) 67. Creativity: work which requires a lot of original thinking.

CI 73. Active work: work where I use much energy in physical activity.

CI 75. Learning: work which provides me with intellectual stimulation.

CI 81. Independence: work which allows me the opportunity to decide how to get the job done.

CI 83. Expression: work which gives me the opportunity to say or show how I think or how I feel.

Table 9 shows item loadings for Factor II. This factor depicts the combining of both family and work career roles, including preparation for marriage, for family life and combining these with work skills that are marketable on a flexible time schedule. This factor might be entitled "Family-Work Flexibility." Items in the factor are as follows:

CI 16. Occupations I can enter from the major allow for re-entry at a later time if I should need to work after a period of time out of the work force.

Table 8. Item Loadings for Factor I

Area[a]	Item	Groups				
		Pooled	CD	Soc/Psy	F&N	Biol
I	67	.59	.71	.66	.60	.59
	73	.45	.65	.45	.58	.40
	75	.63	.76	.63	.64	.60
	81	.57	.60	.54	.59	.64
	83	.56	.65	.48	.64	.48
II	33	.42	.57	.38	.54	.12
	62	.35	.36	.29	.34	.51
	74	.46	.63	.43	.35	.45
	76	.46	.46	.55	.55	.30
III	30	.41	.21	.34	.34	.49
	34	.40	.27	.54	.29	.09
	36	.50	.61	.44	.54	.04
	37	.47	.57	.19	.35	.28
	38	.41	.51	.13	.35	.46
	40	.24	.43	.34	.07	.15
	41	.40	.50	.25	.31	.45
	45	.28	.31	.10	.23	.41
	46	.49	.62	.21	.42	.70
	47	.50	.41	.28	.48	.65
	49	.37	.49	.14	.27	.49
	52	.43	.35	.38	.37	.54
	58	.50	.44	.40	.44	.47
	59	-.34	-.16	-.36	-.41	-.42
	68	.51	.63	.34	.56	.41
	70	-.36	-.43	-.44	-.19	-.44
	72	.48	.59	.51	.51	.45
	84	.50	.62	.31	.41	.51
	85	.17	.13	.00	.42	.05
	89	.29	.05	.16	.41	.43
	91	.29	.43	.17	.36	.29
IV	42	.20	-.06	.32	.14	.50
	43	.23	-.01	.24	.16	.54
	61	-.22	-.03	-.29	.04	-.49
	82	.12	-.04	.14	.47	.03
	90	.19	.41	-.08	.22	.09
	97	.33	.44	-.06	.46	.24

[a]For Area Definitions see Table 9.

Table 9. Item Loadings for Factor II

Area	Item	Groups				
		Pooled	CD	Soc/Psy	F&N	Biol
I	16	.57	.55	.67	.68	.63
	17	.67	.67	.76	.76	.67
	7	.54	.63	.41	.41	.42
II	5	.43	.38	.35	.22	.47
	8	.44	.50	.40	.37	.22
	11	.41	.22	.28	.41	.52
	12	.52	.51	.53	.32	.52
	14	.46	.28	.52	.38	.32
	19	.40	.34	.48	.42	.57
III	2	.39	.34	.34	.11	.46
	9	.44	.45	.19	.15	.39
	10	.50	.51	.56	.30	.37
	15	.47	.43	.36	.42	.53
	28	.29	.00	.24	.07	.48
	32	.41	.30	.35	.38	.40
	43	-.24	-.41	-.13	-.07	-.09
	55	.42	.31	.32	.36	.21
	69	.25	.15	.41	.13	.05
	70	.32	.20	.43	.06	.29
	78	.19	.28	.41	.07	.04
	84	.21	.05	.29	.45	.26
IV	77	.15	.26	.44	-.19	.24
	48	.08	-.03	-.12	.01	.46

I. Items that load high and are in a consistent direction for all groups without interfactor contamination.

II. Items that load high for less than all groups and are in a consistent direction with or without interfactor contamination.

III. Items that load high for less than all groups and are in a consistent direction but contaminate in other factors.

IV. Items that load less than high for all groups and are inconsistent in direction and contaminate in other factors.

CI 17. Occupations I can enter from the major will combine well with marriage and/or family life.

CI 7. It prepares me for marriage and/or family life.

In addition to the items identified for factors, each of the Item Loadings tables contain across-group information in the Area III and Area IV loadings. It is not within the scope of the study to offer a detailed analysis in regard to this type of information. In the interest of space such detailed comparisons are best left to subsequent review. However, as an example of how such comparisons might proceed it is of interest to examine the loadings on Item 28 of Table 9. Clearly, here, the Child Development and Food and Nutrition majors are responding in a more traditional pattern than are the Social Science or Biological Science majors to the item "My parents want me to combine a career and home-making, if possible." An examination of Item 43 indicates a different response for Child Development majors than for those in any of the other majors to the consideration of working outside the home if there were preschool aged children. Child Development majors were less inclined to work outside the home when their children were of preschool age.

Table 10 depicts item loadings for Factor III. Factor III describes parents' influences over their daughters' selection of major through parents satisfaction with the

Table 10. Item Loadings for Factor III

Area	Item	Groups				
		Pooled	CD	Soc/Psy	F&N	Biol
I	20	.75	.78	.71	.67	.78
	21	-.78	-.77	-.74	-.72	-.76
	22	-.73	-.79	-.69	-.57	-.71
	23	.71	.70	.65	.45	.74
II	18	.29	.14	.42	.35	.15
III	38	.31	.27	.28	.41	.27
	40	.42	.26	.42	.49	.50
	41	.20	.16	.02	.47	.22
	80	-.25	-.24	-.43	-.11	-.11
IV	85	-.13	.06	-.13	-.20	-.40

I. Items that load high and are in a consistent direction for all groups without interfactor contamination.

II. Items that load high for less than all groups and are in a consistent direction with or without interfactor contamination.

III. Items that load high for less than all groups and are in a consistent direction but contaminate in other factors.

IV. Items that load less than high for all groups and are inconsistent in direction and contaminate in other factors.

major and to what the major can lead. The factor might be labeled "Parental Influences." Items in the factor are as follows:

CI 20. My parent(s) are satisfied with my present major.

CI 21. My parent(s) want me to change to a major they think would be more worthwhile.

CI 22. My parent(s) want me to change to a major they think would be more prestigious.

CI 23. My parent(s) are satisfied with the type of work I will be able to do when I graduate with my present major.

Table 11 depicts loadings for Factor IV. This factor includes items beyond those in Area I in that some Area II items which load high but do not have some contamination are included. This factor might be labeled "Work Incentives." Included are the valued incentives of opportunity for personal growth, personal fulfillment, expanding personal relationships, financial return, and service to society. Items in the factor are:

I would work outside the home for pay if...

CI 45. it provided for some of the "extras" in life.

CI 46. it provided me an opportunity for personal growth.

CI 47. it provided me an opportunity for service to society by utilizing my education.

Table 11. Item Loadings for Factor IV

Area	Item	Groups				
		Pooled	CD	Soc/Psy	F&N	Biol
I & II	--	--	--	--	--	--
III	45	.68	.61	.73	.66	.44
	46	.59	.67	.65	.62	.35
	47	.42	.51	.42	.40	.25
	48	.66	.67	.67	.76	.31
	49	.61	.57	.68	.74	.30
	27	-.33	-.44	-.30	-.27	-.35
	31	.33	.31	.27	.40	.24
	42	.42	.25	.49	.45	.25
	43	.54	.32	.61	.54	.42
	44	.47	.51	.37	.49	.22
	51	.14	.00	.01	.49	.04
	52	.38	.13	.55	.43	.33
	53	-.38	-.41	-.35	-.20	-.44
	55	-.36	-.36	-.52	-.01	-.43
	58	.39	.43	.51	.48	.27
	59	-.39	-.22	-.22	-.29	-.50
	60	.38	.55	.34	.51	.11
	64	.31	.17	.48	.25	.28
	66	.24	.17	.38	.42	.10
	77	.24	.42	.44	.29	.03
	79	.21	.42	.26	.27	.00
IV	26	.02	-.20	.00	.04	-.48
	30	.20	-.10	.42	.21	-.04
	65	.25	-.02	.46	.24	.17
	78	.25	.30	.46	.38	-.07
	88	.17	.20	.53	.14	-.04
	92	.20	.33	.42	.18	-.04
	94	.15	.43	.35	.10	-.16

I. Items that load high and in a consistent direction for all groups without interfactor contamination.
II. Items that load high for less than all groups and are in a consistent direction without interfactor contamination.
III. Items that load high for less than all groups and are in a consistent direction but contaminate in other factors.
IV. Items that load less than high for all groups and are inconsistent in direction and contaminate in other factors.

CI 48. it gave me satisfaction to see financial return on my educational investment.

CI 49. it provided me an opportunity for expanding my circle of personal relationships.

Loadings for Factor V are depicted in Table 12. Factor V involves the seeking of status and achievement. This factor might be labeled "Promotion and Esteem." Items in the factor are:

CI 65. Status: work which provides me with the esteem of others.

CI 66. Getting ahead: work which provides me opportunities for promotion to higher levels.

Table 13 shows item loadings for Factor VI. This factor describes parental expectations for their daughter's to marry and to have children. This factor might be labeled "Parental Expectations for Daughter's Family Establishment." Items in the factor include:

CI 25. My parent(s) wanted me to marry.

CI 26. My parent(s) want me to have a family.

In Table 13 there is opportunity to examine some of the complexities involved in women's vocational choices. For example, Item 57 assessed the attitude of commitment in marriage to remain with the spouse throughout life. For this item, Food and Nutrition and Biological Science majors

Table 12. Item Loadings for Factor V

Area	Item	Groups				
		Pooled	CD	Soc/Psy	P&N	Biol
I	65	.59	.49	.41	.66	.63
	66	.60	.60	.42	.52	.63
II	64	.61	.38	.54	.60	.65
	77	.60	.25	.36	.56	.65
	78	.39	.07	.22	.43	.43
	79	.38	.38	.25	.18	.51
	85	.37	.29	.50	.28	.28
	86	.39	.10	.62	.08	.40
	87	.48	.09	.35	.57	.50
	88	.53	.35	.39	.52	.53
	92	.45	.54	.40	.42	.31
	94	.50	.22	.28	.57	.62
III	56	.09	-.36	.43	.10	.01
	71	.28	.27	.42	-.08	.38
IV	96	-.03	-.50	.14	-.13	-.14

I. Items that load high and are in a consistent direction for all groups without interfactor contamination.

II. Items that load high for less than all groups and are in a consistent direction with or without interfactor contamination.

III. Items that load high for less than all groups and are in a consistent direction but contaminate in other factors.

IV. Items that load less than high for all groups and are inconsistent in direction and contaminate in other factors.

Table 13. Item Loadings for Factor VI

Area	Item	Groups				
		Pooled	CD	Soc/Psy	F&N	Biol
I	25	.68	.56	.59	.71	.64
II	26	.78	.65	.68	.68	.59
III	28	.40	.46	.59	.25	.07
	07	.03	.09	.35	.44	.00
	57	.13	.06	.07	.44	.44

I. Items that load high and are in a consistent direction for all groups without interfactor contamination.

II. Items that load high for less than all groups and are in a consistent direction with or without interfactor contamination.

III. Items that load high for less than all groups and are in a consistent direction but contaminate in other factors.

IV. Items that load less than high for all groups and are inconsistent in direction and contaminate in other factors.

appear to condition their responses on whether their parents want them to marry (Item 25) and may view marriage as more idealistic than would appear for Child Development and Social Science majors. For the latter majors, these women appear to have learned enough about the potential problems in marriage and family life to more realistically appraise this aspect of their possible future. It is just such an interplay between parental expectations for daughters to marry and have children, daughters' preparation to do so adequately, and daughters' own career aspirations that makes vocational choices of women more complicated than for men.

Table 14 portrays item loadings for Factor VII and includes items beyond those in Area I in that Area II items which load high but do not have some contamination are utilized. Included are items describing family responsibility and a work orientation toward social service. This factor might be entitled "Social/Family Orientation." The two items in this factor are:

CI 42. I would work outside the home for pay if... my spouse's salary were adequate and we had one or more children between one month and two years of age.

CI 11. Social service: work which makes a worthwhile contribution to society and individuals.

Table 15 shows item loadings for Factor 8. Neither within nor between groups does there appear to be any

Table 14. Item Loadings for Factor VII

Area	Item	Groups				
		Pooled	CD	Soc/Psy	F&N	Biol
I	--	--	--	--	--	--
II	42	-.14	-.03	-.21	-.52	-.47
	72	.20	.10	.50	.18	.00
III	2	-.35	.33	-.43	-.48	-.05
	24	-.17	-.15	.04	-.50	-.23
	43	-.14	.07	-.04	-.51	-.32
	47	.02	.01	.46	-.16	.07
	61	.21	-.35	.02	.40	.21
	82	.15	-.54	-.07	-.03	-.61
	91	.42	-.05	.34	.11	.41
	97	.32	.14	.66	.03	-.14
IV	1	-.27	.49	-.29	-.24	.03
	29	-.04	.25	.41	-.16	.29
	30	-.30	.40	.11	-.54	-.17
	37	-.20	.40	.24	-.10	.09
	68	.30	-.04	.49	-.05	.13
	69	.40	-.14	.35	.12	-.01
	84	.20	-.04	.42	-.05	.02

I. Items that load high and are in a consistent direction for all groups without interfactor contamination.

II. Items that load high for less than all groups and are in a consistent direction with or without interfactor contamination.

III. Items that load high for less than all groups and are in a consistent direction but contaminate in other factors.

IV. Items that load less than high for all groups and are inconsistent in direction and contaminate in other factors.

Table 15. Item Loadings for Factor VIII

Area	Item	Groups				
		Pooled	CD	Soc/Psy	F&N	Biol
I & II	--	--	--	--	--	--
III	15	.19	.45	.22	.21	.32
	24	.35	.21	.41	.03	.23
	32	-.37	-.07	-.32	.00	-.51
IV	09	.09	.13	-.39	.46	.09
	34	-.17	.16	-.20	-.48	-.28
	36	-.21	.17	-.03	-.47	-.18
	42	.54	.32	.31	-.13	.47
	43	.48	.44	.36	-.12	.32
	54	-.21	-.06	-.20	-.19	-.43
	59	-.07	-.13	-.42	-.14	-.11
	80	.35	.43	-.13	.07	.50
	85	.20	.47	-.18	.01	.07
	86	.30	.56	-.09	.10	.08
	89	.21	.46	.01	.00	.28

I. Items that load high and are in a consistent direction for all groups without interfactor contamination.

II. Items that load high for less than all groups and are in a consistent direction with or without interfactor contamination.

III. Items that load high for less than all groups and are in a consistent direction but contaminate in other factors.

IV. Items that load less than high for all groups and are inconsistent in direction and contaminate in other factors.

meaningful relationships describing this factor. It appears to be primarily absorbed by the first two general factors and no measure for this factor can be derived.

In summary, the factor analyses identified eight factors, seven of which appear usable for subsequent investigation. These seven factors and their items are summarized in Table 16.

Table 16. Identified WIQ Factors and Factor Items

Factor	Factor Title	Factor Items
I	Work Autonomy	Creativity: work which requires a lot of original thinking.
		Active work: work where I use much energy in physical activity.
		Learning: work which provides me with intellectual stimulation.
		Independence: work which allows me the opportunity to decide how to get the job done.
		Expression: work which gives me the opportunity to say or show how I think or how I feel.
II	Family-Work Flexibility	Occupations I can enter from the major allow for re-entry at a later time if I should need to work after a period of time out of the work force.
		Occupations I can enter from the major will combine well with marriage and/or family life.
		It prepares me for marriage and/or family life.
III	Parental Influences	My parent(s) are satisfied with my present major.
		My parent(s) want me to change to a major they think would be more worthwhile.
		My parent(s) want me to change to a a major they think would be more prestigious.
		My parent(s) are satisfied with the type of work I will be able to do when I graduate with my present major.

IV	Work Incentives	I would work outside the home for pay if...
		it provided for some of the "extras" in life.
		it provided me an opportunity for personal growth.
		it provided me an opportunity for service to society by utilizing my education.
		it gave me satisfaction to see financial return on my educational investment.
		it provided me an opportunity for expanding my circle of personal relationships.
V	Promotion and Esteem	Status: work which provides me with the esteem of others.
		Getting ahead: work which provides me the opportunity for promotion to higher levels.
VI	Parental Expectations for Daughter's Family Establishment	My parent(s) wanted me to marry.
		My parent(s) want me to have a family.
VII	Social/ Family Orientation	I would work outside the home for pay if...
		my spouse's salary were adequate and we had one or more children between one month and tow years of age.
		Social service: work which makes a worthwhile contribution to society and individuals.
VIII	No items	

DISCUSSION

The purpose of the present investigation was to examine vocational choice in college women majoring in Child Development, Food and Nutrition, the Social Sciences, and the Biological Sciences. A Work Interest Questionnaire (WIQ) was designed from extensive literature search, review of established instruments, and input from faculty and students. Data were gathered utilizing the WIQ with 431 students who were rather equally distributed across the selected majors. The questionnaire was subjected to factor analysis with eight factors resulting from the analyses. Seven of the factors appear usable for future work.

Major Findings

Differences were found between students across majors on several demographic items. The higher number of students in Food and Nutrition who are single may be explained by the inclusion of sophomore students in the Food and Nutrition sample. This was done to increase the number of Food and Nutrition respondents and resulted in a younger sample, on the average, than is found in the other three groups. The more frequent joining of sororities by Child Development and Food and Nutrition majors support the finding by Almquist and Angrist (1971) in which sorority membership was associated with the selection of traditional occupations. However,

the high number of sorority memberships in the present study among those students in the Social Sciences does not appear to support findings in the literature for sorority membership and nontraditional career orientations and simply may reflect personal preferences of Social Science majors.

The data indicate that those women in Child Development and in Food and Nutrition desire more children than do women in the other majors. Perhaps this interest in bearing children reflects on a more traditional orientation toward home and family. Certainly the Child Development and Food and Nutrition students are those who have chosen the more traditional majors.

The increase in the educational levels for both mothers and fathers of Food and Nutrition and Biological Science majors support findings from the literature that women selecting a science orientation have parents with higher levels of education.

Mothers of Social Science majors and Biological Science majors were employed more years in full-time employment than were mothers of Child Development majors. This finding supports the reported research findings of Tangri (1972) that women choosing nontraditional careers have mothers who have a longer history of work outside the home. The traditional

nonworking role of homemaker as a model for those in traditional majors (Child Development and Food and Nutrition) is also supported by these results and substantiates the findings of Rapaport and Rapaport (1971). Also supporting these data is the information on students' age when mother worked outside the home. More mothers of Biological Science majors were employed when students were of preschool age and grade school age, a less traditional orientation, than were mothers of other majors. These latter mothers chose to work when their children were older.

Differences in the year the major was declared for Child Development and Food and Nutrition majors (a majority in the freshman year) versus declaring after the freshman year for those in the Social and Biological Sciences provides information on differences between those in more traditional versus less traditional majors. These differences may indicate a stronger awareness on entering college of an intended career for those in Child Development and Food and Nutrition, and may also be the result of better advising for these students. However, the discrepancy also provides support for the hypothesis proposed by Simpson and Simpson (1961) that the decision to enter a nontraditional career may be more difficult for most women and the decision-making process may take longer. The greater number of Biological Science majors who would select the same major again

also may indicate that while the decision to commit to the major may take longer, satisfaction with the major might be greater as a result. The greater number of higher degrees (master's and doctorate) desired by those in the Social Sciences, Food and Nutrition, and especially in the Biological Sciences is indicative perhaps of a stronger career commitment for students in these majors.

Results of between group differences regarding family and work responsibilities indicate a more traditional pattern for both groups in Home Economics. Overall, Child Development majors were found to be more conservative regarding work and family roles, to be less inclined to work outside the home throughout their lives, to be less inclined to work outside the home with preschool aged children in the home, and to have considered the selection of a major which prepared them for marriage and family life. Work components selected by Child Development majors as important to them in the selection of a job (work with special people, work with hands, and a low desire for monetary rewards) are supportative of those skills necessary for work with children. Other work components highly desired by students in the other groups also provided support for skills necessary for the type of work indicative of their chosen majors.

Items from each of the three major theoretical sections of the WIQ (Career Considerations, Future Role Expectations,

and Work Components) were found to load within the eight factors derived from the factor analyses. Such loading provides support for the original inclusion of such sections in an instrument assessing vocational choice in women. In reviewing the eight factors identified through the factor analyses, seven factors appear to provide useful information. There also appear to be three major themes which emerge from the factor analyses. First is a theme of parental expectation. This theme includes the factors of Parental Influences (Factor III) and Parental Expectations for Daughter's Family Establishment (Factor VI). Second is a theme of job flexibility and incentives which includes Factor II (Family-Work Flexibility), Factor IV (Work Incentives), and Factor VII (Social/Family Orientation). The third theme of work values includes the two factors concerned with work components, Factors I (Work Autonomy) and V (Promotion and Esteem).

While Food and Nutrition and Biological Science majors may have been more traditional in their views regarding marriage and family stability, as seen in responses to questions assessing sorority membership, number of children desired, and maternal employment. Students in Child Development and the Social Sciences appear to be more liberal or less traditional in their views, indicating perhaps a more realistic view of marriage and the problems of combining

work and family responsibilities. For women, the complex interplay between parental expectations, personal values, work and role expectations illustrate the need for a multi-dimensional instrument, such as the WIQ, to assess the processes involved in their vocational choices. The data show an interrelatedness of items both within and between groups. These relationships support Zytowski (1969) and Psathas (1968) in their conceiving vocational choices of women as complicated and complex.

Implications of the Study

Results of the factor analysis indicate that items from all three of the major theoretical sections (Career Considerations, Future Role Expectations, and Work Components) loaded within the eight factors. The incorporation of these items from each of the sections of the WIQ would appear to justify the use of the three theoretical areas in a multi-dimensional instrument, such as the WIQ, to assess vocational choice for college women. The three themes (parental expectation, job flexibility and incentives, and work values) resulting from the factor analysis appear closely related in orientation to the theoretical sections in the WIQ. The use of the multi-dimensional approach to assessing vocational choice would appear to be substantiated by the results obtained from the factor analysis of the WIQ.

The data appear to provide support for the traditional versus nontraditional orientation among the majors assessed in the study. However, the majors in Home Economics appear to be moving toward a less traditional view of combining home and work as indicated by their interest in work in general, in obtaining further education, and in combining work and family responsibilities. However, these students in Home Economics still remain more conservative in their orientations toward work and family than those in the Social and Biological Sciences. The similar work value orientations for all the majors would seem to indicate that status and autonomy are important and are considered by women in their selection of a major and career.

Limitations of the Study

The questionnaire was the only method used to collect data and problems inherent in this means of data collection include the following: halo effect; misinterpretation of questions; responding in a socially desirable manner; and a lack of control over variables influencing subjects completing the instrument at home. The exclusive use of subjects at Iowa State University also should be considered a limitation.

Directions for Future Research

The administration of the original WIQ and the revised, factor-analyzed version, to populations beyond the one utilized for this study would provide additional comparison data. Further validation of some items within factors appears necessary.

There also exists a need to look at differences between majors on factor scores for the WIQ. A further redevelopment of items may be indicated for those factors having only two items, with the possibility of writing similar items to strengthen these factors. The new items then would comprise an instrument that would be subjected to an additional factor analysis. Further useful comparative data might be obtained by administering the WIQ to women already working in established careers outside the home.

Continued study of the data presented for this study to more fully tease out the between group differences is needed. Also to be considered in a further review of the data is the examination of possible differences and interactions that responses on one item might have to responses on other items within the 97 original items as well as to demographic questions. The development of an instrument to assess women's vocational choice is a complex one and involves several refinement stages before a desired instrument may be made available.

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APPENDIX A: WORK INTEREST QUESTIONNAIRE

WORK INTEREST QUESTIONNAIRE

This questionnaire is part of a study to investigate factors which may be important in the selection of an occupation. The following items represent a variety of considerations you might have as you select the occupation you want to pursue. Please respond to each item as best you can. There are no wrong or right answers.

Your responses are anonymous, will be held in confidence, and the results of this study will deal only with responses by groups of majors rather than with individual responses to items.

Consider each item separately. In the space provided to the right of each item place a number (1-99) that best tells how true the item is for you. Respond with a "99" if the item if absolutely true for you and with a "1" if the item is absolutely untrue for you. Use "50" if you do not know how true the item is for you. You may use any number from "1" to "99" to indicate how true the item is in your case. Some people use only 1, 25, 50, 75, and 99. Others use 1, 10, 20...up to 99. Make use of the full range (1-99) whenever possible and the distinctions you make should be as fine as you feel you can make them.

Please respond to every statement in the questionnaire using the scale as shown.

1	10	20	30	40	50	60	70	80	90	99
Absolutely NOT true in my case					I don't know how true in my case				Absolutely true in my case	

Information about you:

1. Classification: (circle one) Fr Soph Jr Sr
3. Age: _____ (in years)
2. Sex: (circle) Male Female
4. Major: _____

5. Where did you live most of the time while you were growing up? (check one)

_____Farm _____Small community (2000 or less)

_____Moderate sized community (2000-50,000)

_____Large city (over 50,000) _____Suburb of large city

1	10	20	30	40	50	60	70	80	90	9
Absolutely NOT true in my case					I don't know how true in my case				Absolutely true in my case	

A. REASONS FOR CONSIDERING YOUR MAJOR

HOW TRUE ARE THE FOLLOWING ITEMS REGARDING THE REASONS YOU CHOSE YOUR MAJOR?

I CHOSE THE MAJOR BECAUSE.....

1 1. The first course I took in the major impressed me. _____

2 2. I did well in the course work for the major. _____

3 3. I found no other major to be as easy. _____

4 4. I found no other major to be as interesting. _____

5 5. my family recommended that I pursue it. _____

6 6. I have intended to pursue the major for years. _____

7 7. it prepares me for marriage and/or family life. _____

8 8. my advisor/counselor recommended that I pursue it. _____

9 9. some of my friends are in the same major. _____

10 10. occupations I can enter from the major provide socially prestigious work opportunities. _____

11 11. occupations I can enter from the major allow me to work with people. _____

12 12. occupations I can enter from the major provide good hours and vacation periods. _____

13 13. I was inspired by someone already working in the field. _____

14 14. the status of the major at this University is one of prestige. _____

15 15. occupations I can enter from the major pay well. _____

16 16. occupations I can enter from the major allow for re-entry at a later time if I should need to work after a period of time out of the work force. _____

17 17. occupations I can enter from the major will combine well with marriage and/or family life. _____

18 18. it prepares me for the type of work I want to do. _____

19 19. jobs will be available when I finish school. _____

20. Name any experiences you had prior to attending college which particularly influenced your choice of major. _____

_____

21. What were the primary factors you considered in choosing your present major? _____

_____

1	10	20	30	40	50	60	70	80	90	99
Absolutely NOT true in my case					I don't know how true in my case				Absolutely true in my case	

B. CAREER CONSIDERATIONS

HOW TRUE ARE THE FOLLOWING CONSIDERATIONS IN YOUR CASE?

20 1. My parent(s) are satisfied with my present major. _____

21 2. My parent(s) want me to change to a major they think would be more worthwhile. _____

22 3. My parent(s) want me to change to a major they think would be more prestigious. _____

23 4. My parent(s) are satisfied with the type of work I will be able to do when I graduate with my present major. _____

24 5. My parent(s) want me to develop a life-long career. _____

25 6. My parent(s) want(ed) me to marry. _____

26 7. My parent(s) want me to have a family. _____

27 8. My parent(s) want me to become a full-time homemaker. _____

28 9. My parent(s) want me to combine a career and homemaking if possible. _____

29 10. Following graduation, I plan on employment in work related to my major. _____

30 11. I plan to develop a life long career in my chosen field. _____

31 12. I expect to work throughout my lifetime at some occupation though it may not be in my major field. _____

32 13. I plan to enter and leave the labor force at various times in my life in order to care for my family. _____

33 14. I expect to give up some of my own free time should my work require it. _____

34 15. Following graduation, I plan to continue my education by attending night classes, lectures, etc., while I am employed. _____

35 16. I plan to go to graduate school within five years or so after graduation with my present major. _____

36 17. I plan to keep-up or advance in my work through on-the-job workshops or training programs. _____

37 18. I plan to belong to professional organizations related to my chosen field. _____

1	10	20	30	40	50	60	70	80	90	99
Absolutely NOT true in my case					I don't know how true in my case					Absolutely true in my case

HOW TRUE ARE THE FOLLOWING CONSIDERATIONS IN YOUR CASE? (cont.)

38 19. I would defend the kind of work I am planning to do if someone were to criticize it. _____

39 20. Following graduation, I think I will have most of the necessary skills for work in my chosen field. _____

40 21. My parent(s) would give me psychological support if I chose to pursue a graduate program in my present major. _____

C. FUTURE ROLE EXPECTATIONS

For the following items, please assume that you have chosen to marry and possibly to have children. How true would it be that you would work outside your home for pay given the conditions as stated in each ite

I WOULD WORK OUTSIDE THE HOME FOR PAY IF.....

41 1. my spouse's salary were adequate and we had no children. _____

42 2. my spouse's salary were adequate and we had one or more children between one month and two years of age. _____

43 3. my spouse's salary were adequate and we had one or more children between two and six years of age. _____

44 4. it were necessary in order to meet family financial responsibilities. _____

45 5. it provided for some of the "extras" in life. _____

46 6. it provided me an opportunity for personal growth. _____

47 7. it provided me an opportunity for service to society by utilizing my education. _____

48 8. it gave me satisfaction to see financial return on my educational investment. _____

49 9. it provided me an opportunity for expanding my circle of personal relationships. _____

Assume that you are trained for the occupation of your choice and that your spouse's financial situation is adequate enough so that you wil never have to work unless you want to. Under these conditions, how true would it be that you would use your time to.....

50 10. concentrate on personal interests such as clubs, hobbies, or volunteer work. _____

51 11. work outside the home part-time? _____

52 12. work outside the home full-time? _____

53 13. concentrate on home and family full-time? _____

1	10	20	30	40	50	60	70	80	90	99
Absolutely NOT true in my case					I don't know how true in my case				Absolutely true in my case	

C. FUTURE ROLE EXPECTATIONS (cont.)

HOW TRUE FOR YOU ARE THE FOLLOWING STATEMENTS ABOUT YOUR IDEAS AND EXPECTATIONS REGARDING MARRIAGE, WORK, AND FAMILY RESPONSIBILITIES?

54 14. I believe that both husband and wife should have equal responsibility for the care of the family. _____

55 15. I believe that motherhood and homemaking will provide adequate opportunities for expression of my abilities. _____

56 16. I expect to be able to assume the role of motherhood easily with little or no additional preparation. _____

57 17. I believe that if I marry I will live with that one person until the death of one of us. _____

58 18. I believe that fulfillment of my own career expectations will be equally as important as the fulfillment of my spouse's expectations. _____

59 19. I believe that men are responsible for the financial care of the family. _____

60 20. I expect to coordinate the roles of wife, mother, and career woman. _____

61 21. I believe that women who choose to work outside the home when their children are young are not fulfilling their obligations to their children. _____

D. WORK COMPONENTS

Please respond to the following items by indicating HOW IMPORTANT each item is to you in your selection of a job.

1	10	20	30	40	50	60	70	80	90	99
Very UN-important to me					I don't know how important				Very important to me	

62 1. Variety: work which allows frequent changes in the kind to work I do. _____

63 2. Non-social work: work which requires minimal contact with people. _____

64 3. Earnings: work that provides opportunity to earn the highest pay possible. _____

65 4. Status: work which provides me with the esteem of others. _____

1	10	20	30	40	50	60	70	80	90	99
Very UN-important to me					I don't know how important					Very importan to me

D. WORK COMPONENTS (cont.)

66 5. Getting ahead: work which provides me opportunities for promotion to higher levels. _____

67 6. Creativity: work which requires a lot of original thinking. _____

68 7. Sociability: work in which getting the job done depends on cooperation among workers. _____

69 8. Supervision: work in which I am under the direction of an experienced person. _____

70 9. "Easy work": work which does not require much effort. _____

71 10. Demanding work: work in which the pace is fast, the concentration intense, and there is little time to relax. _____

72 11. Social service: work which makes a worthwhile contribution to society and individuals. _____

73 12. Active work: work where I use much energy in physical activity. _____

74 13. Management: work in which I am responsible for supervising and directing others. _____

75 14. Learning: work which provides me with intellectual stimulation. _____

76 15. Surroundings: work which is conducted in clean, comfortable, and well-maintained surroundings. _____

77 16. Recognition: work in which the results of my efforts and my name are well-publicized. _____

78 17. Security: work which has a stable, secure, and sure future. _____

79 18. Travel: work which makes it possible for me to travel while on the job. _____

80 19. Sacrifice: work which requires me to give the job priority over family. _____

81 20. Independence: work which allows me the opportunity to decide how to get the job done. _____

82 21. Meticulous work: work where I have to be careful about details on tasks which may be repeated often. _____

83 22. Expression: work which gives me the opportunity to say or show how I think or how I feel. _____

1	10	20	30	40	50	60	70	80	90	9
Very UN-important to me					I don't know how important					Very importa to me

D. WORK COMPONENTS (cont.)

84 23. Responsibility: work in which my decisions affect the welfare of many people. _____

85 24. Fiscal management: work in which my decisions affect the use and allotment of much money. _____

86 25. Abstraction: work which involves data, numbers, and symbols. _____

87 26. Work conditions: work where I can expect to stay clean and neat. _____

88 27. Apparel: work in which my personal appearance and stylish clothes are important. _____

89 28. Lengthy preparation: work which takes years of education and practice to be prepared. _____

90 29. Suitable work: work that is well within the range of my abilities. _____

91 30. Personal associations: work in which there are opportunities for close, personal associations among co-workers. _____

92 31. Setting: work which is conducted in a busisness-like setting with many people. _____

93 32. Location: work which is available in geographic places where I would like to live. _____

94 33. Stability: work which is available with well-known, established, and respected organizations. _____

95 34. Atmosphere: work which is conducted in an informal, home-like atmosphere. _____

96 35. Craftsmanship: work which involves making or doing things with my hands. _____

97 36. Special people: work which involves association with a particular group of people such as children or the elderly. _____

INFORMATION ABOUT YOUR BACKGROUND

1. If you had to do it all over again, would you choose the same majo

   Yes_____; No_____. If not, why?_____

   _____

2. Did you come to this university expressly to major in your chosen field? Yes_____; No_____. If not, why did you come to this university?_____.

3. When did you declare your present major? (circle one)

4. Since entering college how many times have you changed majors? _____

5. What was your G.P.A. (approximate) during the last quarter of your sophomore year? _____

6. Do you belong to a sorority or a fraternity? Yes_____; No_____.

7. What is your present marital status? (circle one)

   Single Engaged Married Divorced Widowed

8. How many older brothers do you have?_____; Younger brothers?_____.

   How many older sisters do you have? _____; Younger sisters? _____.

9. How many children do you have at present?_____.

10. What is the total number of children you expect to have?_____.

11. What is the highest academic rank you intend to obtain?

    _____Bachelor's degree _____Doctoral degree

    _____Special degree of certification _____Master's degree

12. What is (was) the highest level of formal education obtained by your parents?

	Father	Mother
Some high school	_____	_____
High school graduate	_____	_____
Some college	_____	_____
Bachelor's degree	_____	_____
Master's degree	_____	_____
Doctoral degree	_____	_____

13. What is the best estimate of your parents' total income last year (before expenses and taxes)? (check the one that best applies)

    Less than $10,000_____; $10,000-$20,000_____; $20,000-$30,000_____;

    $30,000-$40,000_____; More than $40,000_____.

14. If your mother worked outside the home while you were growing up, did she work:

    a. Part time? Yes_____; No_____; Number of years_____.

    b. Full time? Yes_____; No_____; Number of years_____.

    c. A combination of both at different times? Yes_____; No_____.

15. If your mother worked outside the home either part-time or full-time, how old were you when she worked? (check all that apply)

    a. Pre-school age_____ b. Grade-school age_____

    c. Junior-high age_____ d. High-school age_____

16. What kind of work do you hope to do following your college graduation

    _____

17. Please add any additional information you would like to give._____

    _____

THANK YOU VERY MUCH FOR YOUR HELP AND PARTICIPATION.

APPENDIX B: STUDENT EVALUATION OF THE WIQ

WHAT IS YOUR OPINION ABOUT:

a) How the items and instructions were worded?

b) What items should not be asked in the questionnaire?

c) What additional items might be included?

d) Other than above, how would you suggest improving the questionnaire?

APPENDIX C: STUDENT INPUT TO THE WIQ

1. What considerations did you take into account when you chose your undergraduate major?

2. In terms of planning your own career, what are the important considerations you take into account?

3. What do you consider to be the most important components of work for your personal satisfaction?

4. In the future, if you were married and your spouse's salary were adequate, what reasons would you have for working outside the home?

APPENDIX D: STAFF EVALUATION OF THE WIQ

1. How appropriate are the items for use with junior/senior college students?

2. Do the items within each section seem to fit?
   Are there any items which you feel do not belong?

3. Do you think there any items which might be added to those already in the questionnaire?

4. What is your opinion about the instructions, organization, and wording of the items in the instrument?

Any additional comments you feel would be helpful would be greatly appreciated!

Thank you.

APPENDIX E: APPLICATION TO HUMAN SUBJECTS COMMITTEE

INFORMATION ON THE USE OF HUMAN SUBJECTS IN RESEARCH
IOWA STATE UNIVERSITY

(Please follow the accompanying instructions for completing this form.)

1. Title of project (please type): FACTORS IN VOCATIONAL CHOICE BY COLLEGE WOMEN

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are properly protected. Additions to or changes in procedures affecting the subjects after the project has been approved will be submitted to the committee for review.

Karen L. Peterson — Typed Named of Principal Investigator
1/11/80 — Date
Karen L. Peterson — Signature of Principal Investigator

Dept. of Child Development — Campus Address
294-3040 — Campus Telephone

3. Signatures of others (if any) | Date | Relationship to Principal Investigator

4. ATTACH an additional page(s) (A) describing your proposed research and (B) the subjects to be used, (C) indicating any risks or discomforts to the subjects, and (D) covering any topics checked below. CHECK all boxes applicable.

- ☐ Medical clearance necessary before subjects can participate
- ☐ Samples (blood, tissue, etc.) from subjects
- ☐ Administration of substances (foods, drugs, etc.) to subjects
- ☐ Physical exercise or conditioning for subjects
- ☐ Deception of subjects
- ☐ Subjects under 14 years of age and(or) ☐ Subjects 14-17 years of age
- ☐ Subjects in institutions
- ☐ Research must be approved by another institution or agency

5. ATTACH an example of the material to be used to obtain informed consent and CHECK which type will be used.

- ☐ Signed informed consent will be obtained.
- ☐ Modified informed consent will be obtained.

6. Anticipated date on which subjects will be first contacted: Month 1/21/80 Day Year

Anticipated date for last contact with subjects: Month 3 Day 15 Year 80

7. If Applicable: Anticipated date on which audio or visual tapes will be erased and(or) identifiers will be removed from completed survey instruments: Month Day Year

8. Signature of Head or Chairperson | Date | Department or Administrative Unit
Joan Clark | 1-10-80 | Child Development

9. Decision of the University Committee on the Use of Human Subjects in Research:

☐ Project Approved ☐ Project not approved ☐ No action required

George G. Karas — Name of Committee Chairperson
Date
Signature of Committee Chairperson

APPENDIX F: LETTER TO DEPARTMENT HEADS

Interoffice Communication

IOWA STATE UNIVERSITY
of Science and Technology

DATE January 21, 1980

TO Department Executive Officers
Food and Nutrition
Psychology
Selected Biological Sciences
Sociology

FROM Sam Clark, ~~Head~~ Sam Clark
Department of Child Development

The purpose of this communication is to introduce to you Ms. Karen Peterson. Ms. Peterson is a doctoral candidate in the Department of Child Development. Presently she is engaged in data collection for her dissertation entitled, "Factors in Vocational Choice by College Women" which she is doing with me. We very much would appreciate any cooperation you can give us in contacting your junior and senior women majors so that they can have the opportunity to complete a short questionnaire. We have selected only a few departmental majors for study so that we can handle the study within a Dissertation format. However, each major is selected to yield a sampling of the variety of choices open to women students. Thus it is important to us that your women students be included if possible. Should you have any questions about the procedure and which you should like to ask me rather than Ms. Peterson please do not hesitate to call me at 4-3040.

APPENDIX G: COVER LETTER FOR MAILED QUESTIONNAIRES

Iowa State University of Science and Technology Ames, Iowa 50011

Child Development Department
101 Child Development Building
Telephone 515-294-3040

Dear Student,

Your help is needed in completing the enclosed questionnaire. This questionnaire is a part of my research on factors women consider in their choice of a college major. Similar information already is known for men. It is not known for women. That is why your cooperation is especially needed. The information you supply can result in more appropriate career guidance being made available for women.

This study has the approval of the Department of Child Development and Iowa State University. Dr. Sam Clark is working with me on this project. All responses you give are completely anonymous and your returns will be kept in strictest confidence.

In order for the study to be successful we need your completed questionnaire. You represent women on one of only a few majors selected for the study. Your return of the questionnaire is very important in order that I have sufficient data for the selected majors. If you should have any questions about the study please feel free to contact me at 294-5258.

I would greatly appreciate it if you would take 15 minutes to complete the questionnaire, put it in the enclosed, stamped and addressed envelope, and drop it in the U.S. mail. Thank you for your consideration of this request.

Yours very truely,

Karen Peterson

Karen Peterson

Doctoral Candidate,
Department of Child Development
Iowa State University

APPENDIX H: EXPLANATORY LETTER FOR CLASSROOM ADMINISTRATION

Letter to be read to each group of students before each administration of the questionnaire.

Dear Student(s),

This study is being conducted to determine factors involved in college students' selection of an occupation. You are being asked to fill out this questionnaire which asks questions about your reasons for choosing your major, what you expect to do in the future, and what values are important to you when you choose a job.

Your decision to participate is voluntary. You may choose to complete the questionnaire I am going to distribute or you may choose not to complete it.

Completion of the questionnaire should take 20-25 minutes. All of your responses are completely anonymous. Please do not put your name on the questionnaire. Your cooperation in the completion of all items on the questionnaire will be most helpful to me in my dissertation research and will be greatly appreciated.

Additional comments for those students participating in assessing the instrument:

Some of you are being asked to make comments about the questionnaire on the attached page. Your evaluation of the questionnaire will help me revise the form according to your suggestions. Please fill out the full questionnaire and then turn to the back page where you will find the additional questions. Thank you for your extra help.

APPENDIX I: CODE SHEET FOR THE WIQ

CODING

Work Interest Questionnaire

Column (Card 1)	Description	Coding
1	Card #	
2, 3, 4	Subject #	
5 - 42	Reasons for Considering Major	1 - 19 raw data
43, 44	Experiences Prior to College	See attached for coding instructions
45, 46	Primary Factors in Considering Major	See attached for coding instructions
47 - 80	Career Considerations	1 - 17 raw data
(Card 2)		
1	Card #	
2, 3, 4	Subject #	
5 - 12	Career Considerations	18 - 21 raw data
13 - 52	Future Role Expectations	1 - 21 raw data
53 - 80	Work Components	1 - 13 raw data
(Card 3)		
1	Card #	
2, 3, 4	Subject #	
5	Classification	1 = Freshman 2 = Sophomore 3 = Junior 4 = Senior
6	Sex of Subject	1 = Male 2 = Female

Column	Description	Coding
7, 8	Age of Subject	In years
9	Major (Primary)	1 = Child Development 2 = Social Sciences 3 = Food & Nutrition 4 = Biological Sciences
10, 11	Major (Sub-category)	See attached for coding instructions
12	Home Community Size	1 = Farm 2 = Small 3 = Moderate 4 = Suburb 5 = City
13	Choose Same Major	1 = Yes 2 = No
14, 15	Reasons for Not Choosing Same Major	See attached for coding instructions
16	Came to ISU to Major in Expressed Field	1 = Yes 2 = No
17, 18	Why Came to ISU	See attached for coding instructions
19	Year Declared Major	1 = Freshman 2 = Sophomore 3 = Junior 4 = Senior
20	Number of Times Changed Major	Raw data up to 8 or more times
21, 22, 23	Grade Point Average	Raw data
24	Sorority/Fraternity	1 = Yes 2 = No

Column	Description	Coding
25	Marital Status	1 = Single 2 = Engaged 3 = Married 4 = Divorced 5 = Widowed
26	Number of Older Brothers	Raw Data
27	Number of Younger Brothers	Raw Data
28	Number of Older Sisters	Raw Data
29	Number of Younger Sisters	Raw Data
30	Number of Children Presently	Raw Data
31	Number of Children Desired	Raw Data
32	Highest Academic Rank Desired	1 = BA/BS 2 = Special 3 = Master's 4 = Doctorate
33	Highest Educational Level of Father	1 = Some H. S. 2 = H. S. grad 3 = Some college 4 = BA/BS 5 = Master's 6 = Doctorate
34	Highest Educational Level of Mother	Same as above for father
35	Family Income Level	1 = Less than $10,000 2 = $10,000-$20,000 3 = $20,000-$30,000 4 = $30,000-$40,000 5 = More than $40,000

Column	Description	Coding
36	Mother Worked Outside the Home - Part-time	1 = Yes 2 = No
37, 38	Number of Years Mother Worked Part-time	Raw data
39	Mother Worked Outside the Home - Full-time	1 = Yes 2 = No
40, 41	Number of Years Mother Worked - Full-time	Raw data
42	Mother Worked both Full- and Part-time	1 = Yes 2 = No
43, 44, 45, 46	Age of Subject When Mother Worked	1 = Preschool 2 = Grade school 3 = Junior high 4 = High school
47, 48	Kind of Work Desired after College	See attached for coding information

Coding Instructions for Questions #20, 21, #1 (page6) and Coding of Secondary Majors

Question #20--Experiences prior to coming to college.

01--Practical experiences in major field.

02--Baby sitting, nursery, church, or family child care.

03--Involvement with the elderly or social service agency.

04--Office work.

05--Work with young people--4-H, camp, coaching, teaching.

06--Hospital/nursing home service.

07--Previous classwork and reading on the college level.

08--Experiences in high school--classes, teachers, reading.

09--No experiences recorded.

Question #21--Primary factors in considering major.

01--Personal satisfaction.

02--Personal capabilities.

03--Personal interest--in subject matter, subject area.

04--Enjoyment in working with children.

05--Enjoyment in working with people--elderly, handicapped.

06--Job availabilities--location of potential jobs.

07--Desire to help people.

08--Potential monetary return.

09--Job flexibility--ability to combine with personal life.

10--Unknown

Question #1 (page 6)--Reasons for not choosing the same major.

01--Limited job opportunities.

02--Frustration with course work--more relevancy to personal interests.

03--Interest in a completely different major but too late to change majors.

Coding for Secondary Majors (Card #4--Column 10-11)

01---Elementary Education

02---Sociology

03---Psychology

04---Leisure Services

05---Family Environment--Family Services

06---Food & Nutrition

07---Food Science

08---Community Nutrition

09---Dietetics

10---Zoology

11---Distributed Studies--Physical Therapy

12---Distributed Studies--Pre-Vet

13---Fish & Wildlife Biology/Animal Science

14---Distributed Studies--Nursing

15---Biology

16---Distributed Studies--General Studies

17---Bacteriology

18---Botony/Plant Pathology

Coding Instructions for Question #16 (page 7)

Work Desired Following College Graduation

01---Work with hospitalized/handicapped children.

02---Kindergarten/preschool teacher.

03---Child care center director.

04---Elementary school teacher.

05---General extension work.

06---Social worker.

07---Medical social work.

08---Personnel management.

09---Counseling.

10---Clinical psychology.

11---Social service agency work--elderly, special services.

12---High school teaching.

13---Nursing.

14---Physical therapy.

15---Research.

16---Lab technology/lab work.

17---Medical technology.

18---Physician's assistant.

19---Veterinary medicine.

20---Community/extension nutrition.

21---Food product development (test kitchen).

22---Clinical dietetics.

23---Hospital/institutional dietetics.

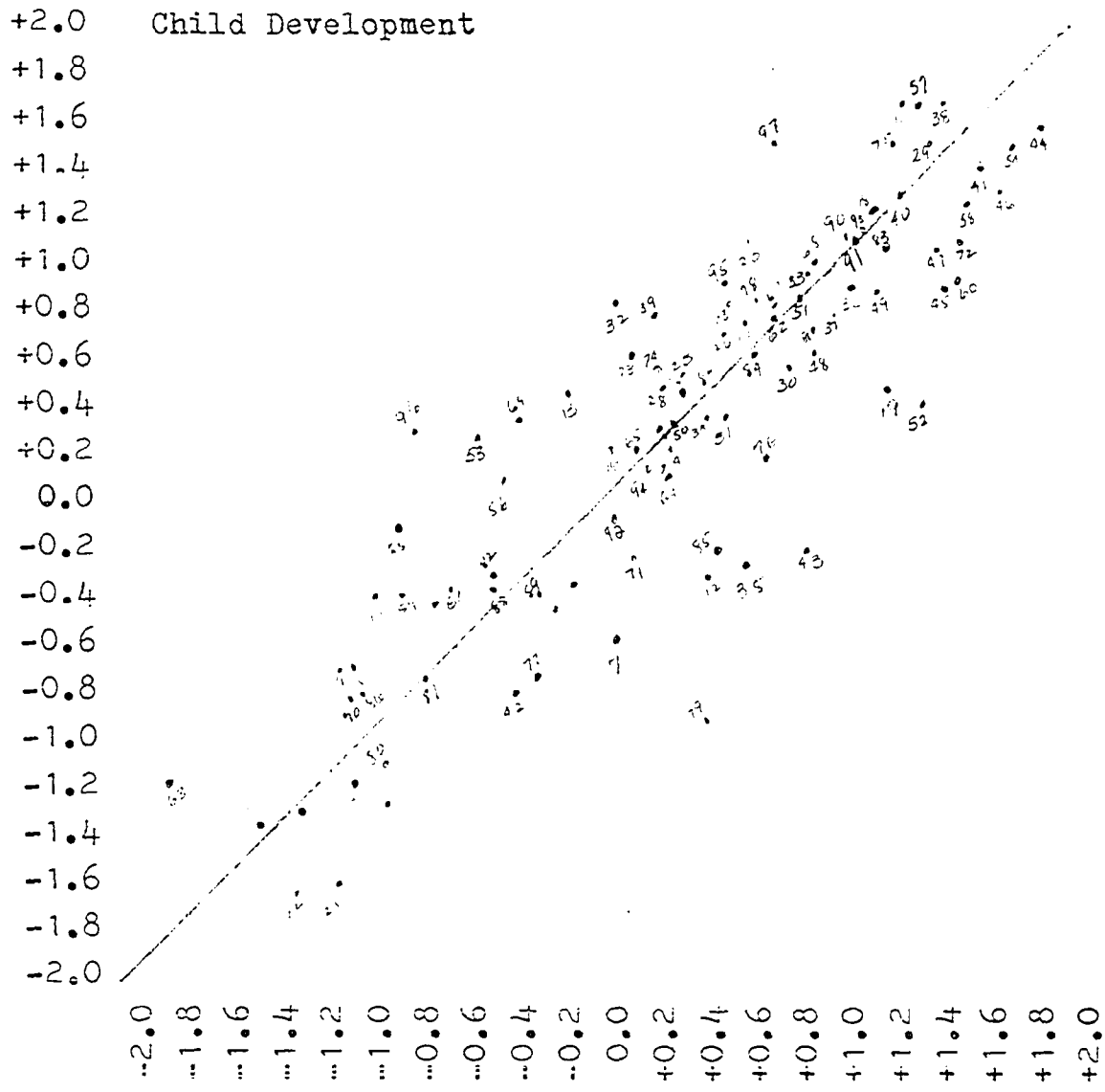
24---Management/administration.

25---Graduate school/studies.

26---Unknown.

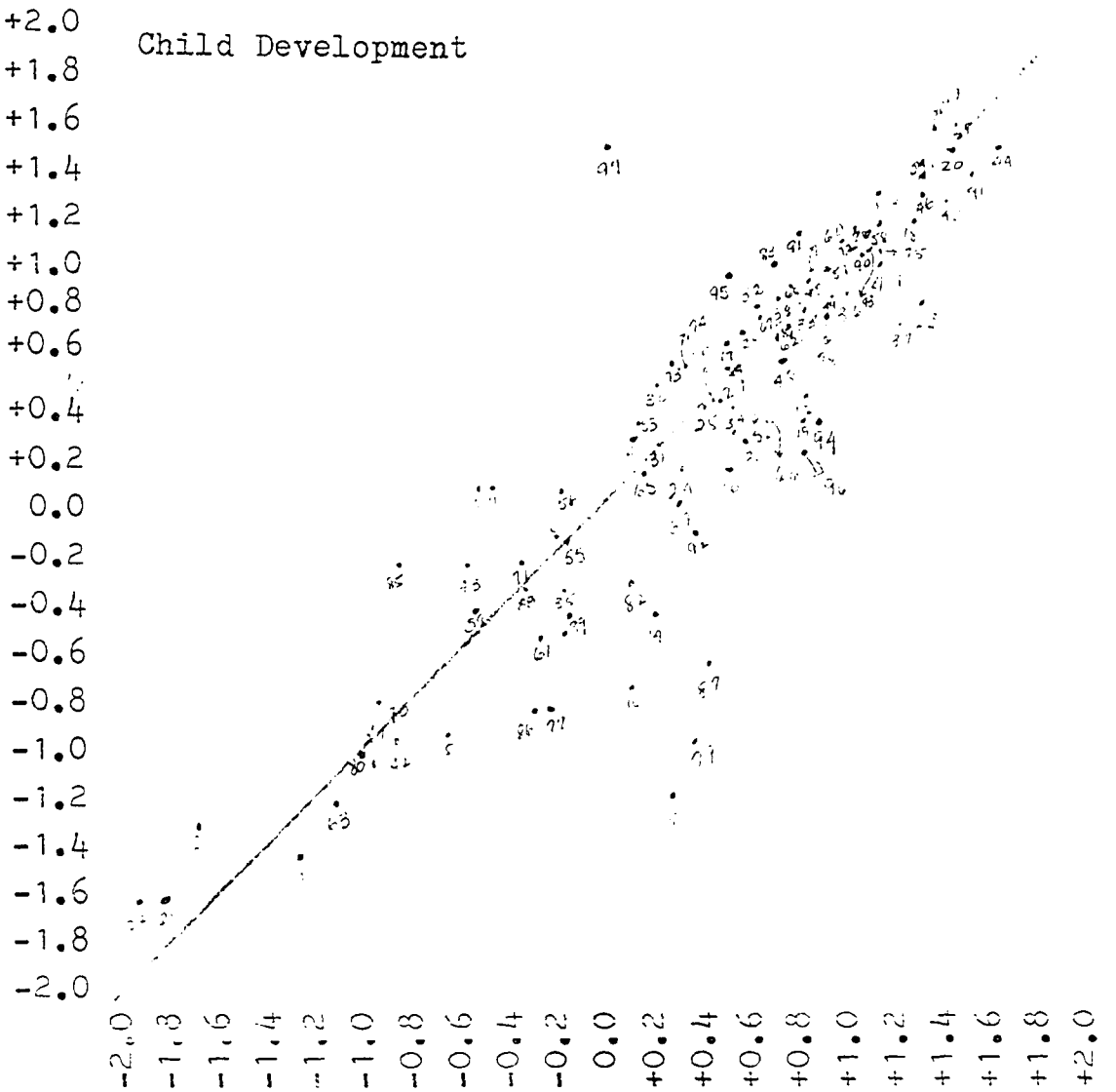
27---Therapeutic recreation.

APPENDIX J: SCATTERPLOT DIAGRAMS



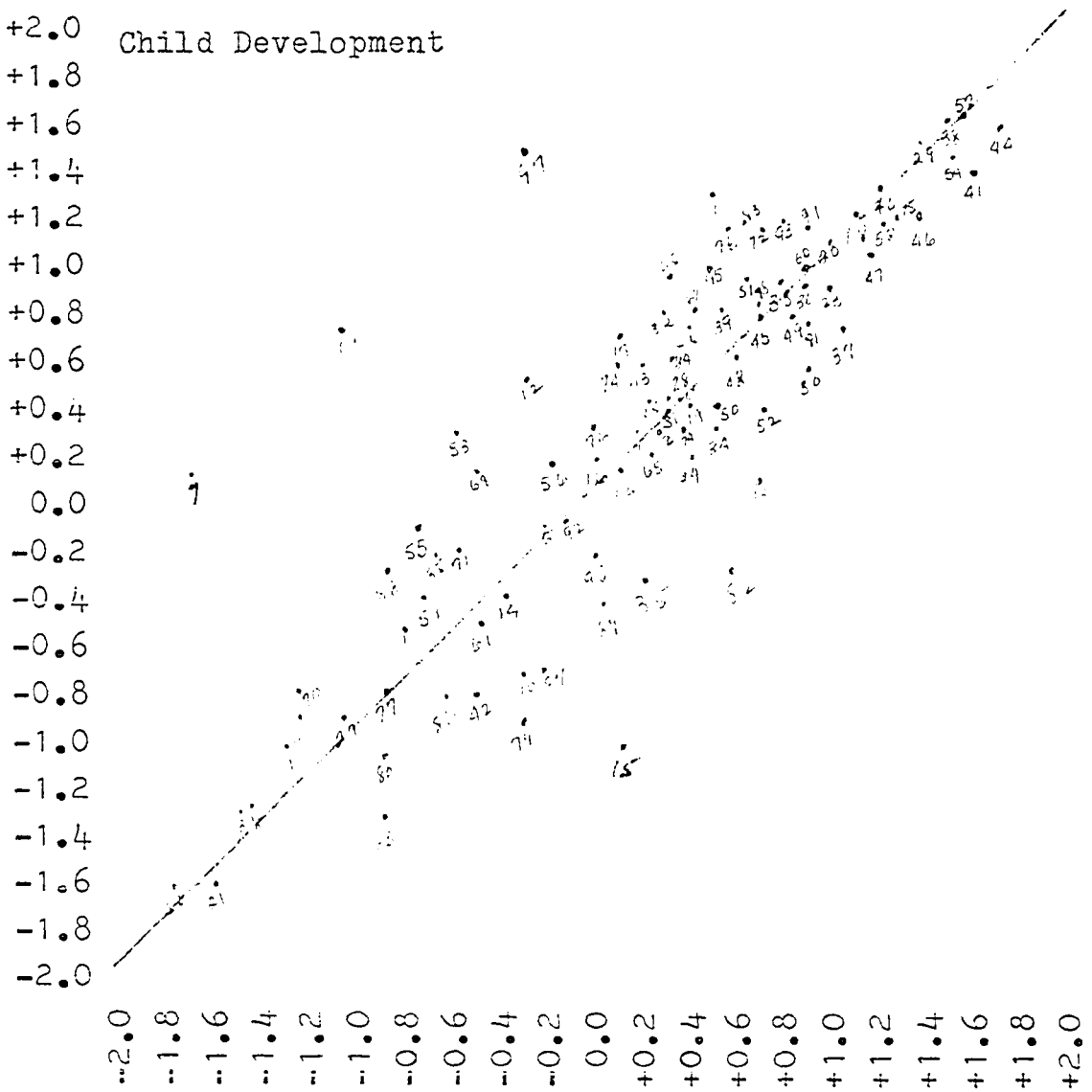
Note: Items above the diagonal line indicate those items for which mean responses of Child Development majors were higher than for Social Science majors. Items below the diagonal line indicate those items for which mean responses of Social Science majors were higher than for Child Development majors.

Figure 1. Mean Responses of Child Development and Social Science Groups to WIQ Items



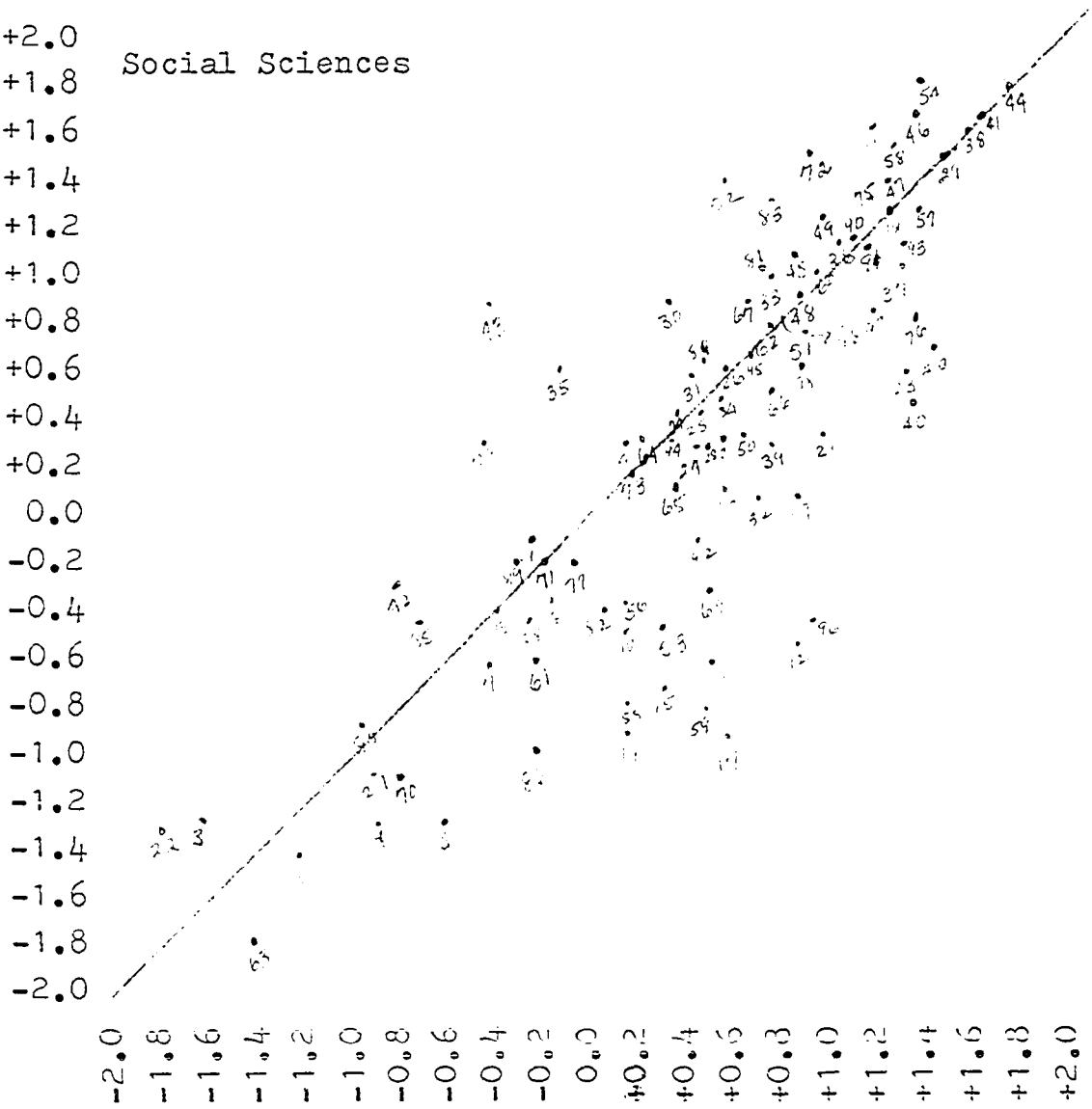
Note: Items above the diagonal line indicate those items for which mean responses of Child Development majors were higher than for Food and Nutrition majors. Items below the diagonal line indicate those items for which mean responses of Social Science majors were higher than for Child Development majors.

Figure 2. Mean Responses of Child Development and Food and Nutrition Groups to WIQ Items



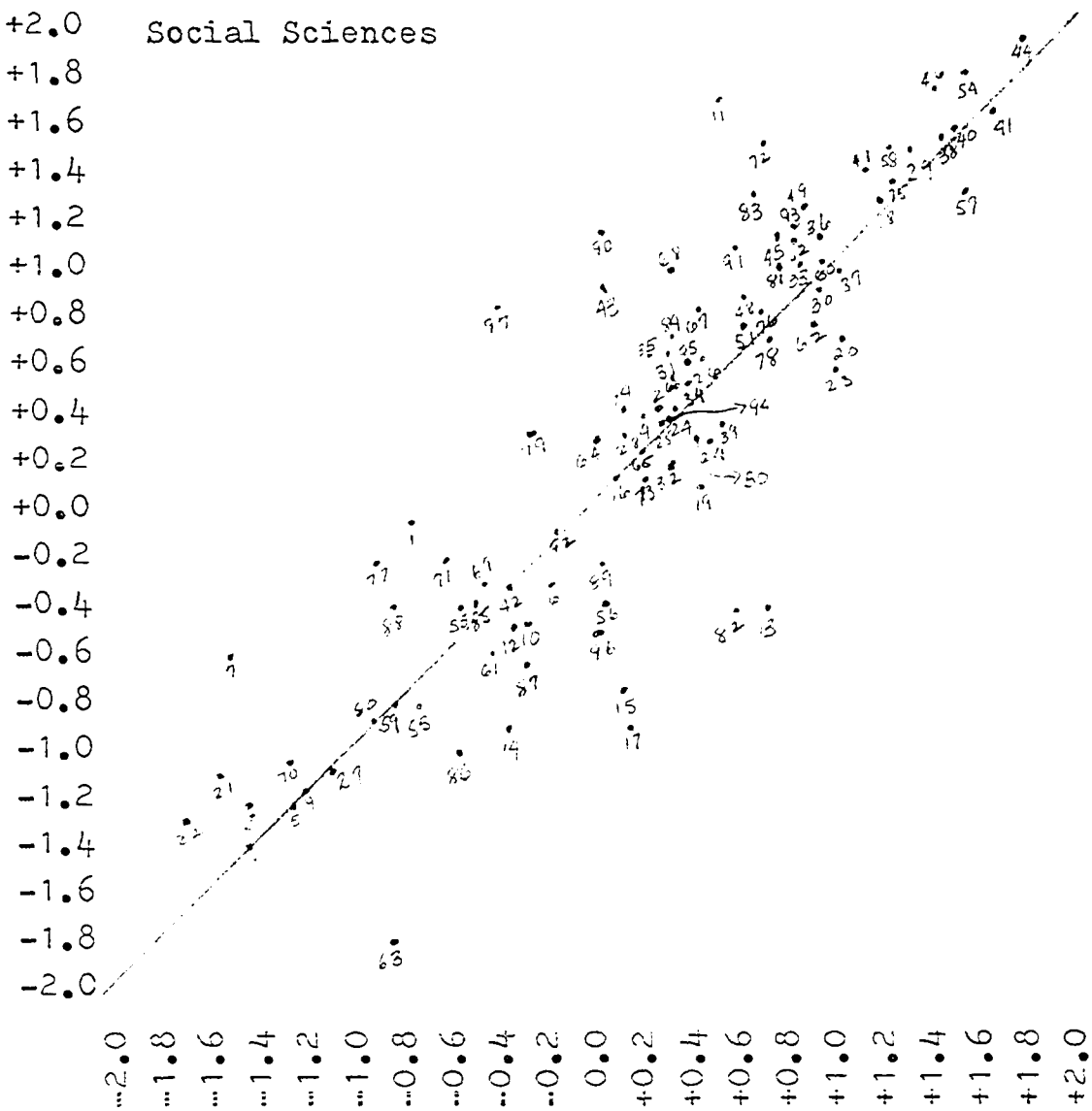
Note: Items above a diagonal line indicate those items for which mean responses of Child Development majors were higher than for Biological Science majors. Items below the diagonal line indicate those items for which mean responses of Biological Science majors were higher than for Child Development majors.

Figure 3. Mean Responses of Child Development and Biological Science Groups to WIQ Items



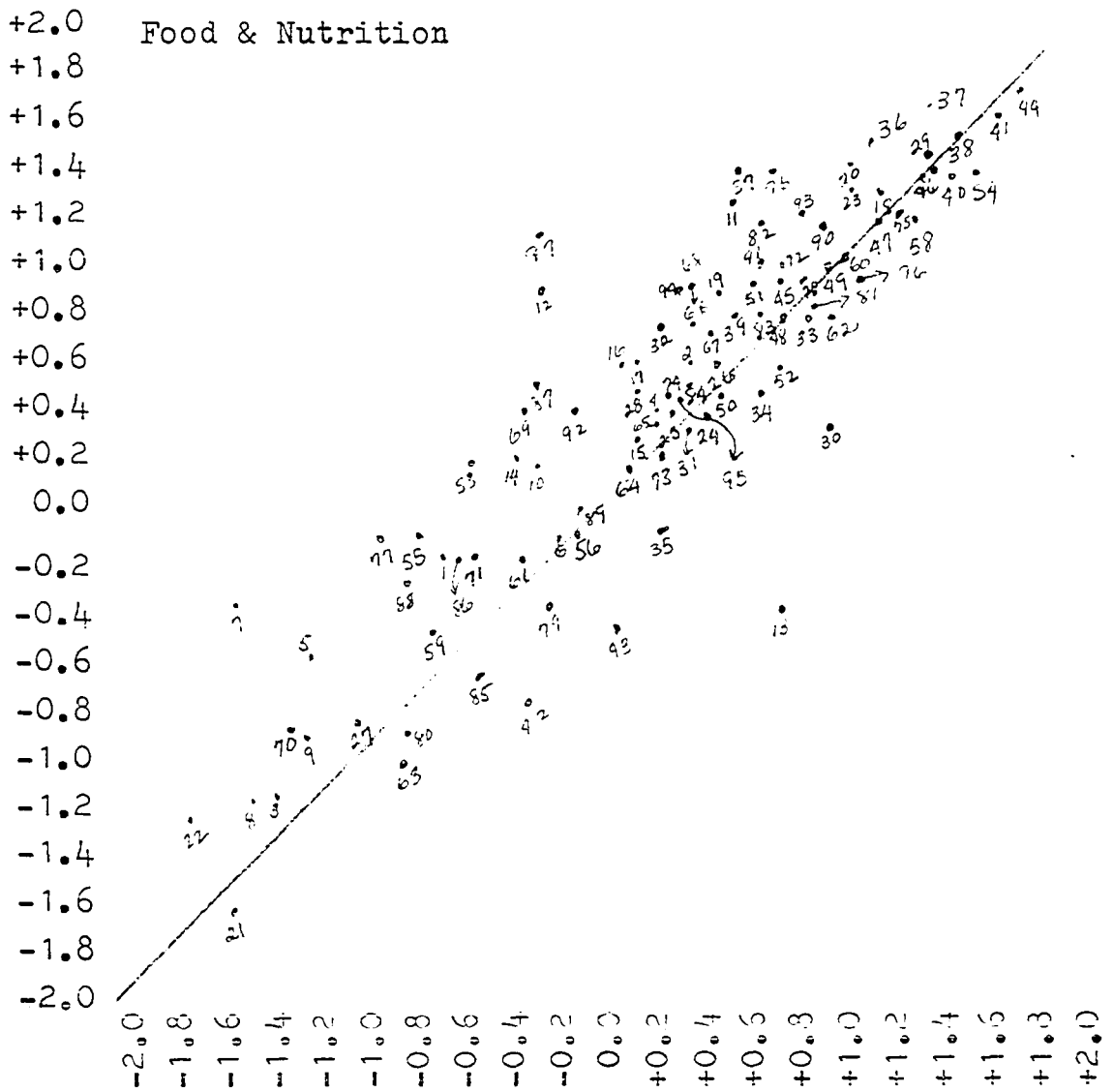
Note: Items above the diagonal mine indicate those items for which mean responses of Social Science majors were higher than for Food and Nutrition majors. Items below the diagonal line indicate those items for which mean responses of Food and Nutrition majors were higher than for Social Science majors.

Figure 4. Mean Responses of Social Science and Food and Nutrition Groups to WIQ Items



Note: Items above the diagonal line indicate those items for which mean responses of Social Science majors were higher than for Biological Science majors. Items below the diagonal line indicate those items for which mean responses of Biological Science majors were higher than for Social Science majors.

Figure 5. Mean Responses of Social Science and Biological Science Groups to WIQ Items



Note: Items above the diagonal line indicate those items for which mean responses of Food and Nutrition majors were higher than for Biological Science majors. Items below the diagonal line indicate those items for which mean responses of Biological Science majors were higher than for Food and Nutrition majors.

Figure 6. Mean Responses of Food and Nutrition and Biological Science Groups to WIQ Items